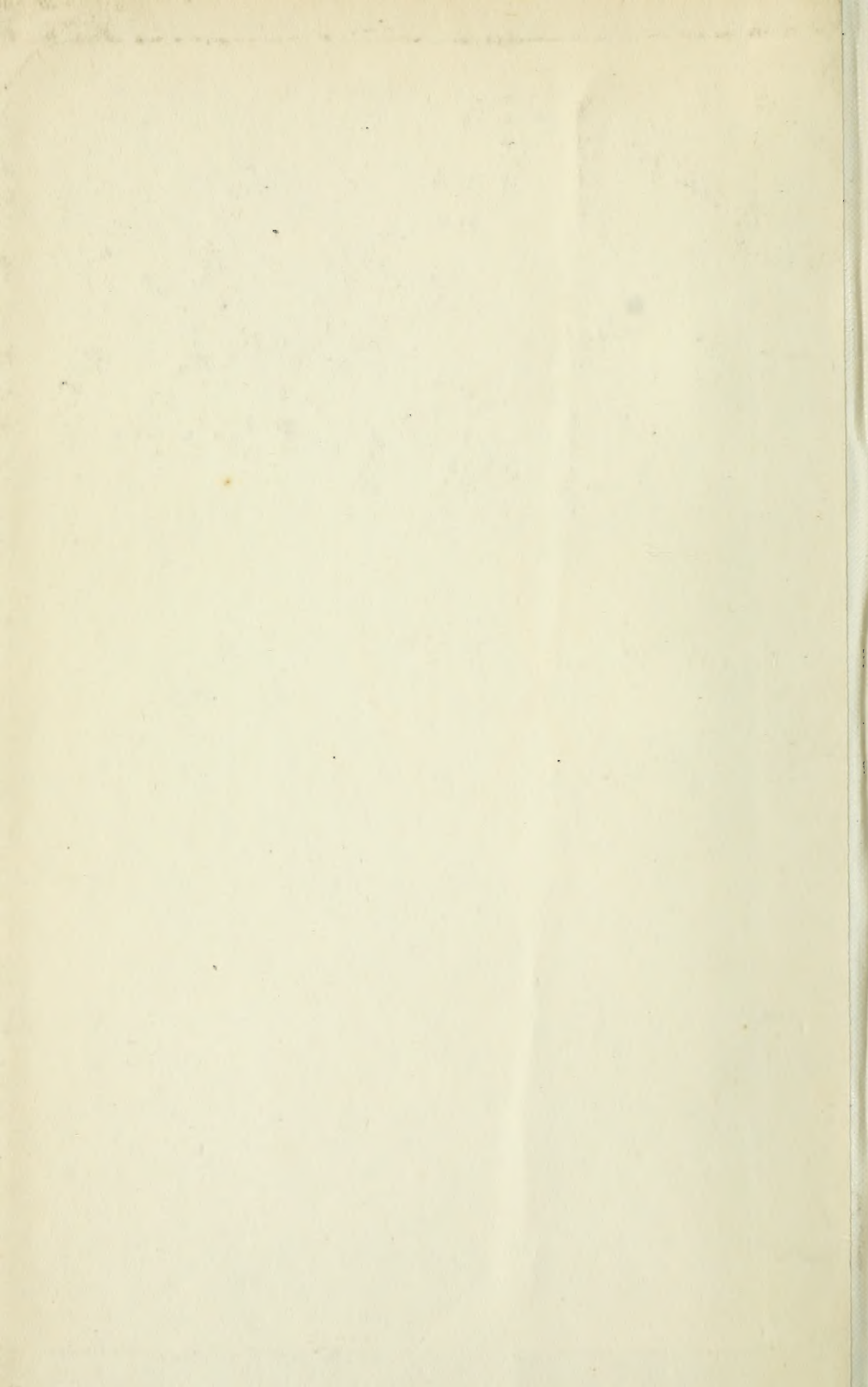
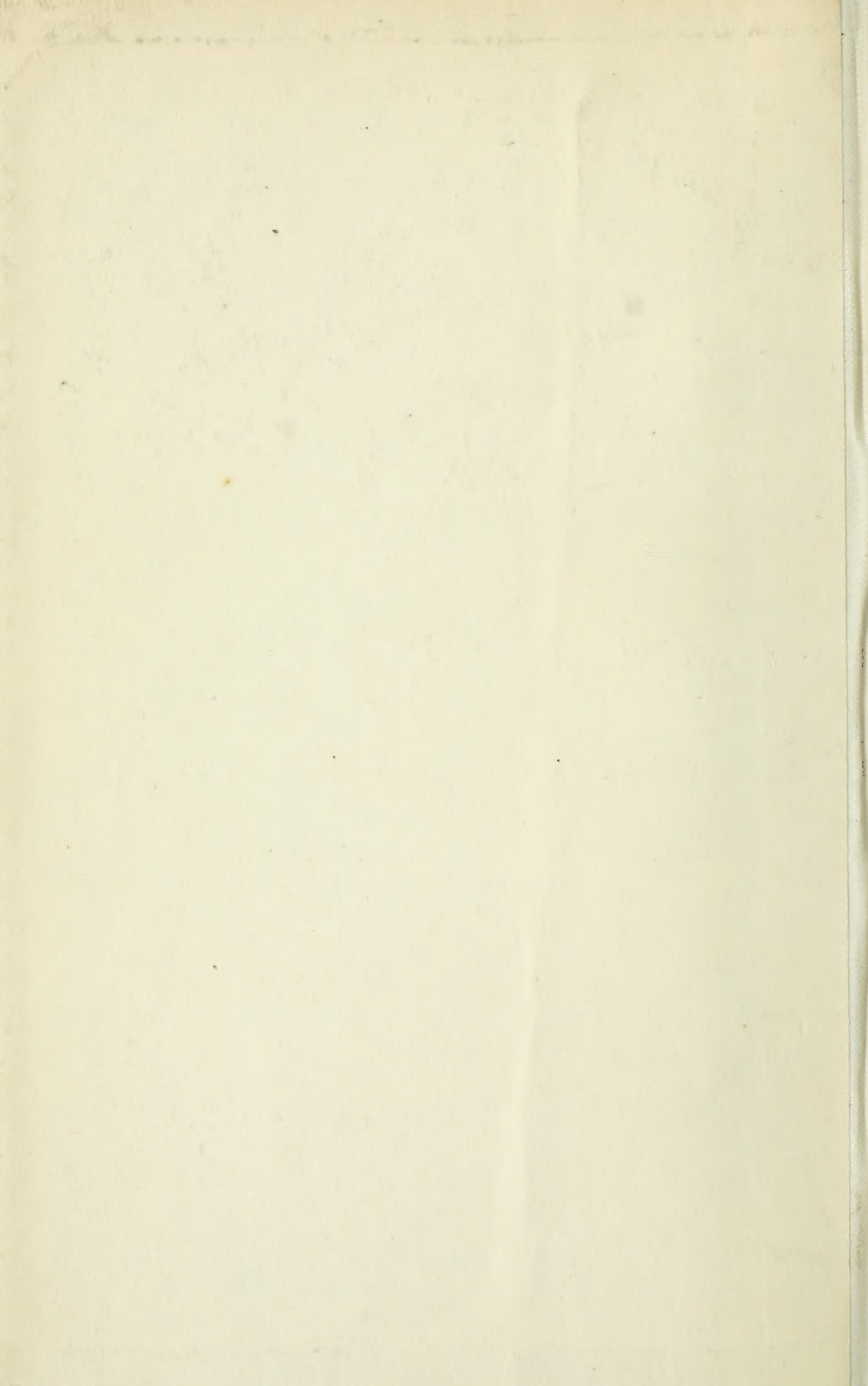


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# THE JOURNAL OF ABNORMAL PSYCHOLOGY

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## ORIGINAL ARTICLES

### A REPORT ON TWO CASES OF SYNESTHESIA

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**T**HE curious variation of normal mental processes, synesthesia, has scarcely received the attention it deserves, in view of its frequency and its possible importance in throwing light on mental activity in general. One finds many articles dealing with it, but a majority are merely superficial reports of individual cases. I have found only one contribution reporting the results of a detailed study of cases made in a psychological laboratory. (1)

The studies of the cases here reported were not extensive and are considered worthy of publication only because they seem to throw some light on one or two doubtful points.

It is not necessary to discuss synesthesia in detail in this article because a very good conception of it can be obtained from a recent article in this Journal (2); it may be well, however, to enumerate a few facts that are more or less basic for the investigations made on these two cases.

Synesthesia is evidently of common occurrence, although it is difficult to estimate even approximately its frequency, because the figures of different observers and even those of the same observer on different material vary within such wide limits. Galton (3) gives the percentage of occurrence as 3.3 of the general population, while Mercante (4) estimates that it exists in 80 per cent. of all grade school children. Calkins (5) found it present in 6.6 per cent. of certain classes of Wellesley College in 1891, and in 15.7 in 1892. Some reason for the difference in these

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figures is to be found in the fact that the condition has been described under a number of different names,—color-audition, psychochromesthesia, photisms, etc., some of which include many more manifestations than others, and again in the fact that it is not possible definitely to separate synesthesia from visions, and the so-called “forms” and “personifications.” Accepting the lowest estimates as correct, however, it remains that synesthesia is a common phenomenon.

A clear idea of synesthesia is probably best obtained from a hypothetical example. In one form a spoken word or other sound is followed in the synesthete not only by the usual sound perception but also by a perception of color which may not differ greatly from the color-percept produced by a colored object, and which takes place coincident with or even before the sound-percept. If in a synesthete the color-association of the name John be red, he is able to name the color as quickly and as definitely as he can repeat the word itself. It is to him as natural that “John” should have a certain color as that it should have a certain sound.

The above example of the association of colors with sounds, the so-called color-audition, is only one type of synesthesia, although apparently the most common one. In a similar manner colors may be associated with vision, taste, smell, touch, pain, temperature, and even with thoughts. Further, the secondary or associated sensation need not be a color; it may be a sound, taste, tactile or any other type of sensation, and indeed may be a feeling of pleasantness or unpleasantness not ordinarily considered as a sensation. Again, secondary sensations may be multiple and involve more than one sense. In fact the types and extent of the associations are almost limitless. For example, when the individual studied by Ulrich heard the letter “a,” he perceived in addition to the sound the color green, a taste insipid and unpleasant, a coldness and a surface smooth like a pane of glass. For him the color association of water varied with the temperature, being at 50° deep red, at 40° clear red, at 35° rose and green and at 25° clear red. Each musical instrument had its particular color upon which were engrafted the colors of the different notes or airs. (6) In some persons only a few words or sounds may have associations, while in others like Dr. D. Fraser Harris, all words and even ideas are colored. (2)

The so-called “forms” and “personifications” and visions often are found in the subject with synesthesia and in a sense

are similar to it. The most common type of "forms" is "number forms" which Dr. Peabody of Harvard has recently estimated to occur in 25% of children. (7) When a subject with a number form attempts any sort of mathematical calculation, he always thinks of numbers as arranged in a certain constant form and conducts his calculations by reading off, so to speak, the results from this form. Sir Francis Galton found that several mathematical prodigies were enabled to perform their remarkable calculations by means of these forms. (3)

In subjects having "personifications" numbers, letters, the months, etc., may arouse feelings that ordinarily are felt in reference to persons. For example one says: "T's are generally cruel ungenerous creatures; U is a soulless thing. I dislike 11, 13 and 17. My feeling for 11 is almost one of pity." (5) Another says: "All the little a's have their eyes turned to the right." (3)

The types of visions are almost as numerous as the subjects having visions. Number forms may be regarded as one variety of visions. Another is that represented by the woman described by Raines, who in idle moments amused herself by recalling the vision of a castle of ancient architecture situated in beautiful grounds, the details of which were invariable and perfectly distinct (8). Still another type is the epileptic aura. (9) (10). Visions probably reach their fullest development in the psychic medium or at least that type of medium who makes her prophecies by interpreting the constant stream of visions and hallucinations of all the senses that pass through her mind under the proper conditions. (11)

Some characteristics of synesthesia stated by Sir Francis Galton in his interesting and illuminating book published in 1883, and since found to be generally applicable are as follows:

- (1) That synesthesiae are remarkably persistent;
- (2) Synesthetes are minute in their descriptions of the colors, thus showing that the colors are distinct;
- (3) Two people hardly ever agree as to the associated color;
- (4) The tendency to synesthesia is very hereditary.

Almost all writers agree that synesthesia generally first becomes manifest in early childhood and that often it is well developed before the subject has learned to read and write. Without doubt it gradually disappears as the subject approaches adulthood unless preserved by training; but a little attention



often will result in its reappearance and practice may serve to increase its scope.

The secondary sensations are remarkably constant. In the case of Dr. Harris himself they have remained practically unaltered since childhood. (12) Professor Holden found very few changes in those of his daughter when he examined her at the ages of 7, 8, 10½, 13, 14½, and 17½ years respectively. (13) Apparently in rare instances associations may change spontaneously, but they cannot be altered by voluntary effort.

There is seldom any great degrees of agreement as to associated sensations among synesthetes, even when they are related. It is said that the oft-mentioned Nussbaumer brothers agreed more often than they differed and Harris and his brother had similar associations in 50% of the words. (12) Usually the percentage of agreement is much smaller than in these examples. It is not a practice conducive to accuracy, therefore, to resort to associated sensations in describing primary sensations as Boring did in his paper on the physiology of tactile, pain and temperature sensibility. (14)

When colors are the secondary sensations they are usually definite and distinct as well as delicate. Several adjectives and various comparisons may be used in describing them. Undoubtedly some associations have been wrongly thought to have changed owing to the fact that in attempting to describe color-mixtures different terms have been used at the later trials for the same tint. Given water colors or paints the subjects are able to match their associations.

Not infrequently synesthesia is found in several members of a family. The cases studied by Smith consisted of a man and his five children (15). Laignel-Lavastine was able to establish its presence in 10 of 11 individuals representing three generations of a family (16). Saurez de Mendoza makes the point that only the tendency to synesthesia is inherited and whether secondary sensations appear or not depends on suggestion to a considerable extent. (17)

Beaumis and Binet investigated the reaction time of associated sensations and found it about the same as that of the primary. (18)

The utility of synesthesia is established by the evidence of many investigators. Harris states that it is never an impediment (19) but Thorp was forced to give up his music on account of the disturbing effects of the secondary sensations. (20) One

synesthete asks:—"How could anyone tell whether a name is pretty or not except by its color?" Another states that words incorrectly spelled have the wrong color. A writer was aided in composing rhymes by his color associations. Mr. Spencer found his of service in learning a foreign language. (21) Scriabin, the Russian composer of operas, judges his harmonies by the colors associated therewith. He has the ambition to see some of his musical creations given with color and odor accompaniments so selected that all three sensations will blend in one great harmony. (22) Blanchard saw an attempt, and to judge from the amount of applause, a successful one, to produce a color-sound harmony in a London music hall. (23) Grafe has suggested that synesthesia may be utilized to make the blind see and the deaf hear. (24)

It is definitely established that synesthesia is not a mental abnormality. That it has been found associated with the psychoneuroses and epilepsy does not controvert this statement. A large majority of the subjects are normal, healthy-minded persons. Indeed it has been frequently stated that their intelligence is above the average. Dr. David Starr Jordan (21), Henry Head (2), and many other noted men have synesthesia. Harris believes synesthesia a manifestation of genius. (19)

It is stated that synesthetes are prone to have certain mental peculiarities. They are apt to be imaginative, introspective, shy and sensitive. As a result of the sensitiveness they may conceal their faculty from a false notion that it is abnormal. Again they frequently have talents along musical and artistic lines. In a surprisingly large number of the reports of cases one finds it stated that the subject is very intelligent.

The present study was undertaken chiefly to establish the degree of correspondence of associated sensations in the two subjects. As they were twins of the same sex and therefore presumably much alike mentally both by nature and training, it seemed that the extent of such correspondence would throw some light on the factors that determine the form of secondary sensations indicating whether these sensations are accidental, *i. e.*, dependent on conditions that it is impossible to determine, a result of some peculiarity of mental make-up, or are determined by suggestion. The cases at first promised to be unique because before the study was begun the subjects themselves believed that their associations were always the same.

The circumstances under which it was discovered that

synesthesia was present in these subjects are interesting and perhaps important. After an intimate acquaintance of several years during which synesthesia was not mentioned, the remark was dropped casually by one of them in my presence that when they were children the names of persons were colored. After a few further remarks the topic of conversation was changed and the incident was forgotten for several weeks. Then I came across the article by Blanchard (23) and recognized that the phenomenon he described was the same as that present in them. Before the study was undertaken all available literature consisting of about sixty articles, was gone over.

The subjects are young men 27 years of age and are very intelligent. In school they were brilliant students. They completed the high school and college courses each in one year less than the usual time, and in both stood near the heads of their classes. On several occasions they accomplished mental feats quite beyond the usual student. Wishing once to enter an advanced class in German, they covered the prescribed work for two years in about 12 lessons taken during a period of six weeks so well that at the end of the following year they were among the very best of the third year class. Again they were able to commit to memory for the purpose of recitation a German poem of several hundred lines merely by reading it over a few times. They surpassed perhaps in literature and languages but also made excellent grades in scientific courses. They are very fond of poetry and offhand are able to repeat dozens of verses from the classical authors, which apparently have been retained from their school days without especial effort. They are fond of and well informed in architecture, music and painting.

Temperamentally they are emotional, sympathetic, sensitive, shy and modest, almost to a fault. Their lack of self-assertiveness has been a great handicap but nevertheless they have been quite successful in their work. They are to some extent introspective and seclusive, and conceal their real feelings and thoughts on many matters. Still they are very agreeable companions and have many close friends. They are perhaps somewhat morbid in their liking for the problems fabricated by writers of the Shaw, Ibsen and Browning types. Their likes and dislikes are similar.

They are described together because they are very similar mentally as well as physically. Their differences are almost too



subtle to analyze. One consistently made grades a few points higher than the other and also takes toward the other the protective attitude of an elder brother.

In the study both at first acquiesced and co-operated enthusiastically. Later, however, as a result of some remark of a meddler a concealed unwillingness to proceed further was detected in one more particularly, and the work as originally planned had to be given up. With one of the subjects an examination on some words of the list and also a second examination after an interval was not possible. This situation accounts for the different sizes of the groups of words used in the comparisons.

A list of 150 names, chiefly Christian names, was made, and then, usually with nobody else present besides the examiner and subject, although on a few occasions both subjects were present, the names were read off and the responses jotted down. Sometimes the subject would glance at the list and give the answer before there was time to read off the name. Usually the answers were given without a moment's hesitation, but with some names there was a period of hesitation, the subject explaining that the color was indistinct or difficult to describe, or that several colors were perceived and it was hard to select the dominant one. When the examination lasted longer than half an hour, the subject showed signs of fatigue and stated that such an array of colors was constantly present as to obscure that of the name. Although both subjects believed that their synesthesiae had disappeared some years before, these immediately appeared when the examination was begun. The second trial was made 3 months after the first, during which interval synesthesia was mentioned only a few times.

Before the examination the subjects believed that their associations were limited to Christian names, but during the tests it became evident that the names of a few cities, some letters and figures and those of the days and months were also colored. Further it was found that the converse association was present, thoughts of colors serving to recall names. With the months there was an interesting experience: When first asked concerning them one subject denied associations. A few days later, however, he said: "Oh the colors of the months suddenly came to me the other day." As it was with figures, letters, and the months, so it is the impression it would have been with many other words had the tests been continued. In his experience

Whipple found that associations were present in categories unsuspected by the subject. (1) It is the impression further that an exhaustive examination by a psychologist would reveal in synesthetes peculiarities in mental activity comparable to synesthesia, in many fields.

It is not desirable for reasons of brevity to give the entire list of words with the responses. It was found that of 80 words with which satisfactory responses were obtained from both subjects, there was at least approximate agreement, with 54.

In the subject who was twice tested, with only two words were distinctly different colors given on the second trial, 3 months later. On the first trial there were, however, 7 words for which no association existed, and on the second 19 different words, to leave out of all consideration the words for which there was no association on either test, and those in which it was not possible to decide whether there was the same association or not. The following tests give some idea of the difficulty of deciding this question, and also of the nature of the responses:

### Subject I

Test name	Association 1st trial	Association 3 mo. later
George	red	pink, I think
John	yellow-brown	yellow
Henry	dark blue	dark
Alma	sort of white	yellow, I think
Nellie	pale yellow	pink, I think
Adolph	muddy, I hate it	red or brown-yellow
Adam	brown	dull red
Abraham	brown	red
Arnold	sort of yellow	red-brown
Thomas	pale blue	dark blue
Will	no association	kind of black (after an interval)
Smith	pale blue, I think	no association
Raphael	starry	white
Max	dark (after an interval)	no association
Ottilie	no association	red I think
Alonzo	yellow	brown or yellow- brown

Alexander	yellow	yellow-red
Gertrude	pale pink	several colors
Sarah	dull	blue
D.	sort of light	no association
L.	white	pale yellow

These names are the two on which there was a decided difference of association at the second trial:

Amy	very yellow	red
Jones	red	yellow

This list of names and responses gives the associations of both subjects:

Subject I		Subject II	
	1st trial	2nd trial	
John	yellow brown	yellow	red
Helen	light blue	pale blue	white
Ruth	red	red	rose, I think
Grace	yellow	yellow	very light buff
Mary	black	black	dark red
James	brown	brown	tan
Annie	pale	pale or white	pale blue
Homer	blue	blue or white	white
Otto	real blue	real blue	kind of blue
Alexander	yellow	yellow	red
Kate	yellow	yellow or yellow brown	tan

Reversing the order of the test and giving the color as the stimulus word, gave the following results in subject I:

	1st trial	3 mos. later
Red	Alice, Adele, Ethel, Esther, Edwin, Edward	Alice, Ethel, Edwin, Ruth, Edgar, Allen
Green	Agnes, Verne, Fern	Agnes, Verne, Fern
Yellow	Charles, Catherine	Catherine, Marguerite, Charles, John
Orange	Julius, Julia	No association
Blue	Hildegarde, Hugh, Sue, Howard and Lucy	Sue, Hildegarde, Lucy, Hugh, Howard and Leland
Violet	No association	No association
Rose	Many names given to test word red	Same
Pink		



When names of members of the family and very common names were used in the comparison, the percentage of agreement was no higher than was the case with the entire list.

It is stated by both that the colors are as distinct as any could be from a colored object. They are not projected but are "seen in the mind." Besides some replies in the above list other evidence of personifications was obtained. Subject I likes 2, 3, 4, 6, 8, M, U, Q, X and Z; dislikes 7, R, S, T, and hates J. Poetry also has color associations in this subject. The colors of poetry seem to be determined more by the sense than by the individual words or letters. It may be that the facility with which both commit verse to memory is somehow a result of these associations.

No reason for the colors of many names can be worked out. A and E color many words red even when not forming the initial letter. So also U and H color some names blue and C some white. The associated color of Brown is brown. It is possible to venture an explanation for these associations: Sue, blue; Flora, red; Fern and Verne, green; Monday, blue. Indeed both subjects state that they believe Monday is blue because of the expression, "blue Monday."

No definite tests were made on other members of the family, but superficial inquiry gave no evidence of synesthesia in them.

Although the percentage of agreement in these subjects (67%) is the highest that has yet been found between two subjects, it would be dangerous to affirm that either suggestion or similarity of mental make-up play any great part in determining the colors. In the first place it seems likely that if more exact determinations of the associations were made, the proportion of agreement would be much lower. Again, considering the small number of colors given as associations, it is evident that the opportunity for difference is much smaller than if the number of colors were greater. With the proportion of identical factors of suggestion with which these subjects, being all their lives closely associated, must have come in contact and with the resemblance as to their mental constitutions, it would seem that responses should agree in a greater proportion of instances, if mental make-up and suggestion play any great part in determining associations.

It would seem that an intensive study of cases of synesthesia, for which the psychologist or perhaps the Freudian is probably best fitted, should throw light on many forms of mental activity. It is doubtful that such a study would repay the psychiatrist or

neurologist for synesthesia seems to be a manifestation of the normal mind. It is possible, however, that the spectra and scotomata of migraine may be in part synesthetic phenomena.

## SUMMARY

In this paper first an attempt is made to give a brief resumé of the principal facts of synesthesia. Then are reported the results of a study of color-audition in twin brothers, whose mental characteristics are very similar. It is found that there was apparent agreement in the secondary sensations of the subjects with 67 per cent. of the test words, but it seems doubtful that the percentage would be so high if more accurate methods were used. It is concluded, therefore, that mental make-up and suggestion are not particularly important in determining the colors in associated sensations. Finally it is suggested that a study of synesthetes by the psychologist or psychoanalyst might reveal interesting peculiarities in other fields of mental activity.

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## THE DREAM IN "JEAN-CHRISTOPHE"

BY ALBERT K. WEINBERG

WHILE to Freud is the honor of having opened up the world of dreams in that first he elucidated their problems and gave full appreciation to their value, it would seem that there has always existed a semi-conscious realization of the dream's significance. Primitive man, we know, attached great importance to the dream, believing that it proceeded from divine powers and presaged the future; this attitude is in a sense based on intuition of truth since the dream comes from the unconscious and does concern itself with the future in embodying a wish. A more valuable testimony to the correctness of Freud's theories is that which has unconsciously been given by the artist, who whenever he has constructed the dreams of his characters, has shown himself in full agreement with the thesis that the dream is a meaningful psychic product. One notable example of this agreement between artist and psychologist is provided in William Jensen's "Gradiva."

It has been my chance to discover another instance where in the utilization of dreams by a writer, it appears that he has unconsciously given approbation to the principles laid down by Freud. Let us not be surprised that Romain Rolland has intuitively understood the significance of the dream. I once heard "Jean-Christophe" designated "the unconscious text-book of all psychology." With what insight, in the early part of his epic novel, Romain Rolland depicts the conflicts of the child soul, illustrating in artistic form the basic psychologic truths that Freud sponsored in the world of science! We think of Jean-Christophe's intense attachment to his mother, of the child's outbursts of hatred towards his father.

In "Youth," on page 313, Romain Rolland finds occasion to have one of his characters relate a dream. Those who have read the book will recall the love-episode between Christophe and the girl Ada, who was his first mistress. Christophe meets Ada when the latter is on an excursion to the country with a party of friends. The two are attracted to each other at the very start and the bold Ada encourages this chance acquaintance of the



country road to join her party. After supper at the inn, the two become separated from the rest, fall into each other's arms and engrossed in their love-making, forget the hour of departure. They miss the last boat and spend the night together at the inn. As soon as Ada awakens in the morning, she insists on telling Christophe her dream. He does not listen attentively and interrupts her, but she forces him to be silent and tells it as if it were a were a thing of the utmost importance:

*"She was at dinner: the Grand Duke was there: Myrrha was a Newfoundland dog . . . No, a frizzy sheep who waited at table . . . Ada had discovered a method of rising from the earth, of walking, dancing, and lying down in the air. You see it was quite simple: you had only to do . . . thus . . . thus . . . and it was done . . ."*

With the aid of only the material the author has given us we can apply to this dream the Freudian technique. It shows not only the element of wish-fulfillment but also the factors of distortion, condensation, symbolism, which Freud has developed in his psychology.

*She was at dinner.* This clearly has reference to the meal which the party had taken the evening before at the inn. It was at the supper that the passion of Christophe and Ada for each other was really awakened. "She felt as she looked into Christophe's eyes the passion that she had kindled in him: and that same passion began to awake in her. She was silent: she left her vulgar teasing: they looked at each other in silence: on their lips they had the savor of their kiss. From time to time by fits and starts they joined vociferously in the jokes of the others: then they relapsed into silence, stealing glances at each other. At last they did not even look at each other, as though they were afraid of betraying themselves. Absorbed in themselves they brooded over their desire."<sup>1</sup>

*The Grand Duke was there.* It is not difficult to discover who this Grand Duke represents. The idea seems to be that there was present a distinguished guest. At the meal the evening before the guest of Ada and her intimate friends was Christophe. They were all, we are told, extremely impressed with Christophe's position as *Hof Musicus*, in their eyes an exalted office. Christophe, therefore, must be the "Grand Duke," the distinguished guest. In addition let us recall that it was at the

<sup>1</sup>Jean-Christophe—Youth—p. 308.

court of the Grand Duke that Christophe was *Hof Musicus*. It is not at all unnatural that Ada should associate Christophe with his patron, the Grand Duke.

*Myrrha was a Newfoundland dog.* Myrrha is Ada's friend, who had been in the excursion party with her. At the meal in the evening, *Myrrha had tried to coquet with Christophe*, whom Ada had marked out as her own. Ada noticed the coquetry on the part of her friend and combatted it with her own wiles. At first Ada did this merely to despise her friend, but we are told, she became caught in her own game. Her own love for Christophe came into being and this awakened love would not have regarded the rivalry of Myrrha so lightly. In representing Myrrha as a Newfoundland dog, a dog characterized by its size and strength, Ada is putting in symbolic form her recognition of Myrrha as the formidable rival.

*No, a frizzy sheep who waited at table.* In this indistinct part of the dream Myrrha seems to change from a Newfoundland dog to a frizzy sheep who waited at table. The wish-fulfillment here is transparent. We will understand the significance of the sheep if we think of the phrase "harmless as a lamb." Ada would have Myrrha cease to be the formidable rival (Newfoundland dog) and become harmless, that is, unable to win Christophe away from her. This is indeed what actually happened at the evening meal. We are told that Myrrha, while attractive to Christophe, could not exercise over him a fascination equal to Ada's and "seeing the bout lost, abandoned the effort, turned in upon herself, went on smiling, and patiently waited for her day to come." Ada knows, however, that her rival is simply waiting for her day to come. She fears for her hold on Christophe, and her dream fulfills her wish that her rival may lose her dangerous character, may become a harmless sheep.

The "waiting at table" is another representation of the same wish. Ada would reduce Myrrha to a subordinate position, would have her cease to be a rival. "The frizzy sheep who waits at table" is a tautology, but the reason for this doubling is of course the intensity of the wish. The "waiting at table" may be understood also in a slightly different sense. It is an aspersion on Myrrha, contemptuously assigned to this menial role. Riklin, in "Wish-fulfillment and Symbolism in Fairy Tales," relates how a man in his dream represented his rival in love as having his head where should have been the pedals of the piano,

so that he, an adept at the piano, might rest his feet on the poor man's head! Dreams are not kind to rivals!

*Ada had discovered a method of rising from the earth, of walking, dancing, and lying down in the air. You see it was quite simple: you only had to do . . . thus . . . thus . . . and it was done.*

There are fulfilled in this part of the dream two wishes, one manifest, the other latent. In the latent wish here embraced, we find the most important element of the dream. Every child of course has the desire to fly, and this infantile desire probably still persists in the adult. But behind this desire to know the means of rising from the earth is concealed, as Freud points out in "The Interpretation of Dreams," a much more vital wish: the desire of the child for sexual knowledge, experience. We will understand the appropriateness of Ada's dreaming such a dream that night when we recall that that night she had had her first sexual experience! The wonderful new thing she has learned in her dream is the experience of sexuality. The rising from the earth, walking and dancing in the air, is a sexual symbol, embracing the idea of the rhythm. The lying down is probably also over-determined with sexual significance.

We might say therefore that this part of the dream embodies a coitus wish, the desire to be Christophe's mistress. Freud, however, has posited that all the elements of a dream, however much they are a condensation of different experiences, possess a uniting link. The nucleus of this dream is obviously the supper of the evening before. The relation of the last part of the dream, containing the fulfillment of the coitus wish, to the parts preceding is easily seen. Ada's unconscious wish at the supper, when Myrrha tried to take Christophe from her, was probably this: May Myrrha not be Christophe's mistress, but may I be his mistress. The reference in the dream to Myrrha's being a sheep who waited at table, is the fulfillment of the first part of this wish; the last part of the dream fulfills the second part of the wish, the desire to be Christophe's mistress.

We have not yet exhausted the latent content of this last element. "To discover a method of rising from the earth, of walking, dancing and lying down in the air" might also translate itself: "To discover a method for obtaining a lover." In narrating the dream Ada joyfully adds: "You see it was quite simple. You had only to do . . . thus . . . thus . . . and it was done." Ada's entire conduct after her meeting with



Christophe was that of a woman fishing for a lover. It was in reality she who had seduced him. Ada has been successful in her efforts and the dream expresses her joy at this success. But she also wants to hold Christophe in the future; the dream would say that it will be possible for her to do this. "You had only to do . . . thus . . . thus . . . and it was done." Ada had discovered a love-charm!

After Ada has finished narrating the dream Christophe simply laughs. Though Ada laughs too she is somewhat displeased by his attitude. Shrugging her shoulders, she says: "Ah! You don't understand!"

What is the explanation of this strange conduct on Ada's part? Must we not assume that Ada herself half-consciously recognized the import of her dream and in thus telling it was indulging in a bit of coquetry? That which she wanted to tell Christophe by the narration of the symbolic dream was this: "It is I whom you must love, not Myrrha." We see now why she regarded the telling of the dream with such seriousness, and why she was angry when Christophe failed to comprehend its significance.

## ON THE ASSUMPTIONS OF PSYCHO-ANALYSTS

ADRIAN STEPHEN

**I**T is the object of this paper to consider some of the inferences which, as I understand them, Professor Freud and others of his school draw from observations made in the course of psycho-analysis. I do not wish to dispute the therapeutic value of psycho-analysis—of that I cannot speak—but I should like to suggest the possibility that some of the theoretic grounds upon which the practice is commonly based may not be justified, and that there is another explanation of the actual therapeutic successes obtained.

As I understand it the theoretic basis of Psycho-analysis is, shortly, somewhat as follows. It is believed that many abnormal psychic states may ultimately be accounted for by the presence in the subject of what I am going to call here a "repression." A repression is an emotion, thought, wish, anxiety or the like, which is kept out of consciousness by the operation, conscious or unconscious, of some shame, pain, or aversion with which it is for some reason associated. It is, as it were, the result of a conflict between an emotion which might in other circumstances express itself in consciousness and counter-emotions which endeavour to "censor" it.

Repressions frequently occur where the subject has suffered some grave misfortune or has done some action or had some strong desire the thought of which he finds extremely distasteful and which he has therefore formed the habit, probably unconscious, of banishing from his mind. This is one of the elements out of which the theory of the psycho-analysts is built up. The other main element is the Law of Association. The Law of Association is, roughly speaking, this: Every thought and indeed every psychic state whatever, that is not immediately induced by some external stimulus, as for instance perceptions of sound or colour may be said to be induced, is induced according to some more or less well defined rules by some previous psychic state. Thus, suppose a man has the idea conveyed by the word "black" presented to his mind, it may well be that this idea will be im-

mediately succeeded in his mind by the idea conveyed by the word "white" because he has been in the habit of contrasting black with white. When he hears of a bicycle accident it may well be that there comes into his mind some other accident in which he himself played some part. The relations which successive ideas bear to one another have been classified and upon this classification has been erected a more or less definite body of rules called the laws of association according to which, it is believed, ideas succeed one another if undisturbed by any external stimulus.

Now the theory upon which psycho-analysis, as I understand it, is based is really made up out of these two theories. The way in which it works out in practice can, perhaps, best be seen by examining an actual instance. The example is taken from Professor Freud's book "The Psychopathology of Everyday Life." The Professor was one day talking with a friend who happened also to be a Jew. The conversation turned upon the bad treatment of Jews in certain countries and the Professor's friend chanced to make a quotation from Virgil to the effect that he hoped their posterity would avenge them. From the quotation as he made it the word "aliquis" was omitted and when Professor Freud called his attention to it he challenged him to explain this lapse of memory. The Professor accepted the challenge and proceeded as follows. He asked his friend first what associations the word "aliquis" had in his mind. The answer was that he at first tended to think of it as divided into two parts: a-liquis. After this the train of association was roughly as follows: liquis—a reliquary at Trent in which the bones of St. Simon were preserved—St. Benedict—St. Augustine—St. Januarius—the annual miracle of St. Januarius at Naples in which the blood of the saint liquefies—the occasion during the French occupation on which the miracle very nearly failed—and, last, an intrigue which he had lately been carrying on at Naples with a lady, and about which he was anxious lest it should lead to embarrassing results. The Professor claims not only that by means of this train of association he was enabled to discover a repression which was weighing on his friend's mind but also that this repression was the cause of the lapse of memory through which the word "aliquis" was forgotten.

Now I would not dispute that what are called repressions may in fact have a very serious effect on the psychic condition of the subject. What I do feel inclined to dispute is that every



abnormal state of mind which leads to the discovery in the subject of a repression is necessarily the result of that repression. It *may* be the result of that repression and in many cases probably is, but I do wish to suggest that in many cases also it probably is not, and that by accepting the theory of psycho-analysis as it at present stands we are very likely to make grave mistakes.

To return to the example: Professor Freud claims to have discovered the origin of a lapse of memory simply by taking the word which was forgotten and tracing the mental connections of that word in the mind of his friend until he came upon an important repression. Now I quite agree that by his method the Professor has in fact discovered what may possibly have been the cause of many mental aberrations on the part of his friend, but I see no evidence at all that he has discovered what was the cause of this particular aberration.

What I believe to be the truth is something like this: That whatever idea was presented to the mind of the subject it would probably have led to the same result. Let us say, to take an instance at haphazard, that the Professor had shown his friend a waste paper basket; it is quite possible that the train of association called up in his mind might have been something like this:—Waste paper basket—the withies of which it is made—the water in which they grew—other liquids—blood—St. Januarius and so on pursuing the same train of associations as was in fact pursued. My point is that there is no topic so remote from any other that by following a train of associated ideas you cannot get from one to the other. Further, I believe that if there is any topic in which any man happens to take an extreme interest his thoughts from *whatever starting point* they set out will constantly tend to return to it. Thus if I am just about to be married any mention of shops is likely to suggest something I have bought for my bride and so back to my wedding. There seems to be a kind of attractive force in topics which are of great interest to us which causes our thoughts always to return to them. We may not return immediately—our thoughts may, in accordance with what are called the laws of Association, proceed by devious routes as, in the case which I quoted, the word “*aliquis*” did not lead at once to the lady at Naples, but led by way of relics and St. Benedict till eventually it reached St. Januarius who happened to be very closely connected with Naples where the affair took place which was weighing on the subject’s mind.

When the train of thought got as close to the repression as St. Januarius the "attractive force" as it were of the repression was enough to take it the whole way. Sooner or later *wherever* he started the subject was certain to hit upon *some* thought which had a close connection with his repression and then his repression was revealed.

To argue from this fact that it was the repression which *caused* the original forgetfulness which started the enquiry seems to me quite unwarrantable. I believe that almost whatever topic Professor Freud had started, say as I have suggested it was a waste paper basket, the result would have been just the same. The result would probably have been just the same even if Professor Freud had chosen as his starting point the first idea which came into his *own* mind, so as to preclude absolutely the possibility of its being his friend's repression that had originated it. I would also here point out that the longer the train of associations by which we are led from our starting point to the discovery of the repression the greater the number of side tracks, as it were, all leading eventually to the same end, shall we find by the way. Professor Freud is very pleased because in the train of associations which I have cited there occur the names of two saints, St. Augustine and St. Januarius, which are closely connected with the calendar, and it may well be supposed that any one suffering from the particular repression from which the Professor's friend was suffering might be particularly interested in the calendar. Further St. Simon, whose name also occurs, was sacrificed as a child and the Professor suggests that the suppressed fear that a child might be born might be the cause of the appearance of this name. However, as I have said, it is always easy to lead by a train of associations from any one point to any other and there are usually many different ways of doing so. Thus in the imaginary case that I have myself given, beginning with the waste paper basket we might proceed, not by the way by which I did proceed via the withies, the water, the blood, and St. Januarius to the lady, but by a much more direct route. We might well proceed via the basket in which the baby Moses was discovered in the rushes and, by the way, as the Professor's friend was a Jew, this route would have been extremely appropriate. Not only, however, are there as a rule many different easy ways from the starting point to the goal, but there are also as a rule many easy ways from each intermediate step to the goal, so that the mere fact that we can find many different kinds

of connections from the one end of our train of association to the other will not help Professor Freud's contention in the least. The fact is that the more remote his starting point is from his goal the more routes are there likely to be which will bring him safely to port and therefore the more material will there be for the construction of a satisfactory proof.

Now it is quite possible that it is of no importance whether my ideas be right and Professor Freud's wrong from the point of view of therapeutics. I do not deny that repressions may be of the gravest importance and that they can be discovered by the method of psycho-analysis and subsequently cured. What I do deny is that this fact supplies any evidence at all that all the psychic phenomena which, taken as starting points, lead to the discovery of repressions, are necessarily the result of those repressions. It is quite possible indeed that in connection with matters very closely associated with the repression there may, as a result of the repression, be psychic aberrations, and that the examination of the aberrations may lead to the discovery of this repression. But it is also possible that there may be mental aberrations or even quite ordinary normal mental states which have no causal connection whatever with repressions other than that which every later mental state may be said to have with every earlier mental state, which will yet, as a result of psycho-analysis, lead equally to the discovery of the repression. Thus one of the most common forms of repression is connected with sex. Suppose a man who has a sexual repression dreams of a walking stick which he has just been given as a birthday present. On being asked what a walking stick reminded him of it is very possible that this man would soon mention a sexual object—certain superficial external resemblances might well call such an object to his mind. Professor Freud would there-upon claim that the dream of the walking stick was caused by the sexual repression. The point which I desire to make is that there is no reason whatever for supposing this to be the case. There is no reason whatever for supposing that the intrigue with the lady at Naples led to the momentary forgetting of the word "*aliquis*" even though the forgetting of the word "*aliquis*" led back ultimately to the discovery of the repression connected with the intrigue.

One more point I would add especially as I have been considering largely cases of sexual repression. There is a fact which I think psycho-analysts would do well to bear in mind whether



they are interpreting the "symbolism" of dreams or for whatever purpose they are employing psycho-analysis. I think they would do well to remember that all physical objects are either perfectly spherical or longer in one diameter than in another. They should therefore be careful in saying that a rounded object occurring to the mind is symbolical of the rounded forms of a woman's figure or that an oblong object is necessarily phallic. Judged according to the canons of evidence which seem now to be observed in the courts of the psycho-analyst and living, as we at all events apparently do, surrounded by a three dimensional space, there are few of us who can hope to be acquitted of something very like sexual mania, for not only do the psycho-analysts seem to regard any idea which may be treated as sexually symbolical as necessarily the outcome of a sexual repression when a sexual repression has been shown actually to exist but they go one step further and infer the existence of a sexual repression from the mere occurrence of "symbols."

# A CLINICAL STUDY OF THE ORIGIN, DEVELOPMENT AND DISAPPEARANCE OF A SYSTEM OF DELUSIONS

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**T**HE delusions this person suffered from were of the following character. She thought ministers preached about her in their pulpits. She thought sermons about her were being published in the daily papers. She thought people passing in the street took especial notice of her and made remarks to each other about her. She thought her business associates, for she is a working woman, talked about her among themselves; and the chance phrases, words, or even syllables she sometimes overheard, she interpreted as referring to her in adverse criticism.

The content of these delusions was to the effect that she was immoral. That was why ministers preached and papers published sermons about her. That was why people on the street noticed her and made slurring remarks about her and why her associates also did the same thing. She was in despair.

In her own mind, the way people got this idea of her was through the fact that she had the habit of "looking" where she "ought not to," (the abdominal region of men) seemingly fascinated. This was noticed and thus her habit became known, she thought. Naturally, therefore, in her opinion, she was regarded as immoral, although nothing could be further from the fact.

These delusions took such firm hold of her that she almost gave up her work and moved away. She cut clippings of sermons to prove her assertions and demanded that her friends, associates, and the townspeople should be assured of the fact that she really was "good," though troubled by a bad habit she could not control. As is always the case in delusions, she was almost absolutely impervious to argument or reason.

What, now, was the origin of this obsessive-like tendency to "look" with the consequent development into delusions?

Innate, congenital conditions were the soil, so to speak, in which the obsession, and the delusions sprouted and grew. The origin and course of their development, sketched out in the large, was somewhat as follows:

This person found herself possessed of powerful passions. "When I want anything I want it so terribly I am afraid," she said. In this respect she was like her mother, who was a very passionate woman. But her mother gave more or less free rein to her feelings and her daughter hated it and resolved to be as different from her mother as she possibly could, so, although she might be on fire within, she refused expressing it without and thus repressed, successfully, her instinctive feelings.

Because she disliked her mother so intensely, and because she feared her own passionate desires might lead her into immoral actions, she carried over this feeling even to her own sex and to defend herself against her woman's instinctive desires, came to dislike intensely being a woman. Trying to escape being a woman, she desired intensely to be a man and did everything possible, in thought, word and deed, to become as completely as possible manlike. She had a man's ambitions, socially and professionally. She wished, intensely, to dominate any situation she found herself in; she wished the same sort of professional success that a man wishes for. She desired so intensely and so deeply to be a man, that one night she dreamed she was a man, playing a man's part in life.

The nervous strain, as might be expected, of a woman trying to be a man, was very great and so she became very much disturbed, depressed, and psychotic, as shown by the obsession.

Knowing she really was a woman, although she wished she were a man, she did not dare to go to a man for help for fear he would take advantage of her, but went instead to a woman.

This woman was very religious and tried to help her by teaching her how to love, religiously. But she did not realize her patient was on the very verge of a psychosis, and as a result of her efforts the patient fell in love with her instead of rising to the heights of religious love. This frightened her would-be benefactor and she therefore withdrew her efforts to help. Thus the patient was thrown on her own resources.

It was shortly after this that she developed her delusions.

Blocked in every direction, the patient's love-instinct, or



desire to get and to give affection, degenerated, first into an obsession, and then into delusions.

I say "blocked in every direction" for these reasons: Intellectually she found it discouragingly difficult to rise to any sufficient height of abstract, or symbolical, form of mental life, and so finding an even approximately adequate outlet in that direction for her unconscious mental energies. She had little or no opportunity and was incapable of working very successfully in Art, Literature, Philosophy or Religion. Thus these avenues of escape, these deliverances for her soul were blocked. She could not "love" women because she was a woman, and other women would not allow her to love them—it frightened and repelled them—and besides she herself did not want to love women because of her mother, and because of a deep biological instinct, probably against it. She could not "love" men, or a man, because of its danger. She was afraid, she said, if she allowed herself to love a man, that he would take advantage of her, and that she would thus become immoral. Besides, she did not want to "love" a man, she wanted to "be" a man—and she *could* not, so every movement of her spirit seemed blocked.

The patient was very much in the position of an aphasic who, after trying again, and again, to express himself, bursts into tears. A transitory delusion appeared and disappeared during the course of the treatment. I had said, merely emphasizing what she already had said herself, that she was obviously a passionate woman, and thinking it over she decided that negroes were the most passionate people she knew anything about. Then she thought people thought she was a negro, in disguise. She imagined they made remarks about her negro origin, and negro blood. She thought, herself, that perhaps her mother had negro blood in her and had concealed it. This soon passed away, however.

This, in brief, is an outline sketch of the origin and development of a system of delusions of persecution and ideas of reference, starting in an obsession.

Let me now show how the delusions disappeared; the obsession dwindled and in its turn, too, disappeared; and how the recovery of the diseased psyche began through emotional orientation followed by a steady progress towards complete mental health; and how a normal functioning of a social self among other social beings in society became possible.

The first step towards recovery was taken when the patient became willing to talk, more or less freely, about her trouble. She then began slowly to understand it. Instead of repression, expression took place. This, alone, relieved some of the inner tension, or nervous pressure, so to speak, and was a necessary preliminary to the next step. The improvement shown here consisted in a lessening of the depression; the emotional states themselves became less intense; and a higher grade of conscious, purposive thinking became not only possible, but actually took place and was apparent.

The next step in recovery came almost immediately following the appreciation and understanding, *by the patient*, of the intensity and repression of her desire to *be* a man. Soon after this discovery was made by her, her delusions disappeared. "People stopped referring" to her on the street; her associates no longer made veiled remarks about her morality; and no sermons were preached or published about her. This disappearance of her delusions took place about a year and a half ago, and there has been no sign of their return since. On the contrary she now sees how they might have started in thoughts about matters of fact, which, falsely enlarged, and transferred, gradually became delusions through the force of emotions of the origin and nature of which she was unconscious.

With the disappearance of the delusions went also the obsession. Thus the patient became emotionally orientated and normally self-controlled.

The relation between the obsession in this case and the delusions seems to me interesting. It would seem to be, either, that the obsession was a sort of forerunner of the delusions, or developed into them, or, that both obsession and delusions were but different symptom forms, the one being abnormal "looking," the other being abnormal "thinking," of a deeper, underlying dynamic condition.

In this case, therefore, obsession and delusions are similar, as symptoms, but in themselves, I think, they are different.

The obsession is only an intensified and persistent reaction, the inherent nature of which remains unchanged. The delusions, however, are of the nature of mirror space," or a "reflection," which comes back to the observer "reversed," and therefore not "true." In other words the patient "projects" her own thoughts into the sounds she hears, and coloring them with her own emotions, gets them back, so to speak, *as if* from the objec-

tive world. This is why argument is of no avail in combatting delusions; as indeed, however, it is of little avail in combatting obsessions. A delusion, is a delusion, because the emotional intensity with which an idea is shot forth, so to speak, sends it back with *reversed direction* and its falsity consists in its *reversal*, not in the logical nature of the idea itself. Therefore, to remove delusions, as well as obsessions, the emotional tension *behind* the ideas or actions must be relieved; only then can the mind perceive the falseness of direction which constitutes the delusional or obsessional aspects of such an idea.

James defines a delusion as a false idea about a matter of fact. Now ideas are dynamic things; they are tendencies toward an object. Their falseness, if they are false, consists in pointing in the wrong direction, so that if the one who possesses them tries to follow them out he won't get to his object, the "matter of fact." Therefore, if the idea is that other people are thinking of one, when there is every reason in the world for not believing the idea, its falseness consists in its *inward* moving appearance, when really its movement is *outward*, or projecting, from the one who has it, into the one from whom it is supposed to come.

In showing, therefore, the emotional accompaniment of the ideas which pushed them into obsessions and delusions, I hope I have made a little clearer, perhaps, the origin, development and disappearance of this particular system of delusions.

Another thing has to be taken account of in this connection and that is the fact that the emotion, or feeling, properly belonging to one idea or situation may be dissociated from its proper companion and reassociated with some other set of ideas or situations. This process takes place unconsciously to the person thus afflicted so it is impossible for him to see the psychological situation as it really is. This is another reason why argument is of no avail, and other help is necessary. Only after the inner turbulence of the feelings and emotions has somewhat subsided can the victim perceive himself as others really see him. And he can only get what others see if others will take the trouble to tell him, after he is willing to, or can, listen. This is why a deluded person cannot cure himself. He cannot see himself.

In conclusion, it is important to notice in such cases as these that there is an extreme sensitiveness of the person to other persons' opinions. This patient said, "People hurt me. I can't bear to speak to them in the street, lest I cry." Probably



a reason for this lies in the fact that these people feel themselves unable to hold their own in social situations, together with the fact that their social instinct is very highly developed so that any social danger is exaggerated because of an intense desire for "perfect" social relations. Such people simply cannot bear the inevitable, if not necessary, imperfections of all real social activities.

"The fiend that man harries  
Is love of the best."

The best things on earth, perhaps, are the most nearly perfect social relations that are humanly possible; but if one cannot bear present imperfection, while he is working for its betterment, he is in danger of a nervous or mental disorganization. To help reorganize a disorganized person it is necessary to know something about the factors involved. To show some of these factors, acting out their results, is the purpose of this paper.

# DR. PRINCE AND THE QUESTION OF THE SUBCONSCIOUS

BY H. W. CHASE

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A criticism of experimental findings in terms of a theoretical viewpoint is likely to leave matters about where it found them, especially when the critic lacks first-hand knowledge of the experiments which he presumes to discuss. The stimulating paper by Dr. Prince, however, in a recent number of this Journal,<sup>1</sup> raises an issue which is of such interest that perhaps some discussion of its findings may be pardoned.

In this paper are described phenomena which, in the author's words, "afford *direct* evidence of specific subconscious processes occurring under certain conditions." The subjects, three in number, were able, through retrospection in hypnosis, to recall "coconscious" images, usually visual, sometimes auditory, which had never entered the field of consciousness, and were not integral elements of the conscious stream of thought at the time of their original occurrence. The results were obtained many times, and "there was never any doubt about them as memories, nor any doubt about them as previous realities, that is to say, real psychical occurrences."

Admitting, as there is every reason to do, the good faith and competency of the observers, and the significance of the results, the question may none the less be raised whether these results *do* offer direct proof of the existence of subconscious mental processes.

The argument may best take its start from a typical case cited by Dr. Prince. One subject, in hypnosis, was told that upon awakening, at the moment that the physician performed a specified act, she would walk across the room to a couch, pick up a leather case there lying, and take out a key which had been placed within it. This she did, and was unable to give any explanation of her act—becoming embarrassed when its propriety was questioned. But, again hypnotized and asked what made her do as she did, she replied, "Why, pictures of myself doing

<sup>1</sup>Prince, Morton. Coconscious Images. *Journal of Abnormal Psychology*, Vol. 12, 1917 p. 289.

it," pictures of which she was not consciously aware while the act was being performed, but to whose existence as "real psychological occurrences" her explanation testified.

In any discussion of the significance of this and similar experiences, it is necessary to distinguish carefully between facts and hypotheses. The facts are that the subject testified—translating her report into somewhat more formal terms—that when asked (in hypnosis) why she behaved as she did toward the box, images of herself opening the box and taking out the key appeared, and that these images were thought of as having occurred in the actual previous situation, though she was not at that time aware of their occurrence. That is, the images of the second experience (in hypnosis) had the stamp of familiarity, were recognized.

Dr. Prince's implicit assumption is that this feeling that the images were familiar, that they could be located in the past, can be explained *only* in terms of a previous mental (in this case coconscious) process which is regarded as its causal.

There is, however, another possible point of view. Everyone would admit that both the original and the revived experiences were accompanied by complex neural activity. Let us suppose for a moment that the images did *not* occur as psychological realities in the original experience, but that this could be described purely in physiological terms. There was complex cortical activity, A, but no image, A'. This cortical activity involved those patterns whose activity, had it been accompanied by any mental experience, would have been accompanied by the image A'. At the same time other neural activities were going on, some of them attended by conscious processes, some not. The subject, that is, was being stimulated by the physician's behavior, by the surroundings in the room, etc. We may call these "accessory" cortical activities (which furnished, so to speak, the "setting" of the original experience), B, C, D, etc.; leaving out of account the question of which of these were conscious.

Now comes the revival of the experience. The stimulus of the physician's question (in hypnosis) causes the revival of cortical activity A. At the same time (because of the neural associations set up during the original experience) it causes a partial arousal of neural processes, B, C, D, etc., which were accessory to the original experience. Because of the altered conditions, the total neural activity, A, B, C, D, is this time accompanied by a mental experience; images appear (A') and



these are characterized by a feeling due to the modification of the total conscious process by neural activities B, C, D, etc. These latter activities, so to speak, are symbolized to the subject by the "feeling that the images were familiar."<sup>2</sup>

On such an assumption, the final conscious experience is to be explained *in toto* by the neural activities which went on during the original and the revived experience. The explanatory sequence is thought of as describable in terms of neurones, not of ideas. The original experience may have been wholly physiological. The evidence that it was not is altogether indirect: "all takes place *as if* there were this subconscious process."

To sum up: One may take the position that one mental process, or a characteristic thereof, can be explained only in terms of another mental process. This assumption Dr. Prince implicitly makes, and, once made, his evidence of the existence of subconscious mental processes is direct. Or the position may be taken that the chain of causation is never between idea and idea, always between neural activity and neural activity. In this case we have direct evidence that the sort of neural activity went on in the first experience which, had it been accompanied by mental states, would have been accompanied by the sort of images in question, but no direct evidence that the assumed subconscious *mental* states did occur.

As a matter of fact, if mental states are not regarded as causes, it becomes, from any pragmatic standpoint, quite immaterial whether the assumed coconscious (mental) states did or did not occur. The fact that behavior was controlled by a certain type of neural activity is the important practical point.

Dr. Prince has then not shown (unless his fundamental assumption that mental states are causes be admitted) that subconscious psychic states exist. But he has shown something more important than this; he has thrown light on the kind of neural activities which are constantly going on, without conscious accompaniment, and which play a large part in regulating behavior. To center the debate about the attempt to prove, or to disprove, that such processes have a psychical quality about them, is to make of what is really a minor issue the main point of dispute. The patient of course reports them as though they were mental; can of course report them in no other terms, since he can report in speech only those processes which, either at the time of their original occurrence or later on are accompanied by

<sup>2</sup>They are the setting which give the idea its meaning as "something which has been experienced before on such an occasion."

consciousness. The importance of his report is, however, so far as its significance in explaining his behavior is concerned, the testimony which it gives as to the particular habit-patterns in his cortex which were functioning. This is the point about which Dr. Prince gives us direct evidence. His findings lose nothing of their significance if the whole "mental but subconscious" question is relegated—as it should be—to a footnote for the edification of those whose interests are chiefly metaphysical. To rephrase some of Dr. Prince's conclusions in neural terms, he has shown that elaborate neural processes go on which are not accompanied by ideas, that these are sufficiently like cortical processes which are accompanied by conscious states that they stimulate to activity neural patterns which, when they are accompanied by mental states at all, are accompanied by the sort of mental state called an "image;" that neural activities which go on without consciousness result in modifications and elaborations of the neural patterns concerned, some of which elaborations may later "break through into" consciousness; that conscious behavior, including emotional reactions, somatic phenomena, and the sequence of ideas, may be motivated or determined by such neural activities.

Such facts are extremely important for all who are interested in explaining human behavior. Why should the value of such a real contribution be clouded by insistence on a theory of mental causation which, as knowledge accumulates, becomes less and less acceptable to the majority of students of human nature?

## A STUDY OF TWO EPILEPTOID CASES IN SOLDIERS

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**E**PILEPSY and epileptoid states have always, as regards their pathology, been wrapped in obscurity, though some observers have laid down dogmatic theories which are found to be untenable on subsequent investigation. As has been frequently pointed out of late years, the most obvious and really the most inessential part of the disease has been studied almost ad nauseam, *i. e.* the convulsion itself, whereas the interparoxysmal period with its patent mental abnormalities has received comparatively little attention. It is true that all neurologists note the fact that an epileptic has a more or less specific type of character and they point out his egotism, quarrelsomeness, shallow religiosity, etc., but the deeper currents of his mentality, his mental conflicts and the maladaptating factors which are so often seen prior to his attacks, have received but scant notice. It is also true that the fits may be replaced by the exhibition of various anomalous psychic phenomena termed "psychic equivalents," but beyond their being mentioned, little or no light has been thrown on their meaning or mechanism. We are much indebted to Pierce Clarke of New York for his clinical studies in epilepsy and for his so ably demonstrating the psychogenetic aspect of this disease. In carefully recorded case histories he has shown the type of abnormal mental factors that slowly but surely get built up into the epileptic character and he states that from a minute study of their reactions in early life he can recognize the prospective epileptic and that by suitable psychotherapeutic measures the disease may be prevented, aborted or even cured. McCurdy too has pointed out that the supervening dementia which seems later to be just as much a part of epilepsy as the convulsion, has no real relationship with organic deterioration but is due to lack of environmental interest and to the giving up of the struggle to make any adaptation at all. He avers that by the arousing and objectivating of interest the patient's seeming dementia may be relieved and even entirely



dissipated. Maeder and Ernest Jones have, in their mental analyses of epileptics laid especial stress on the infantile and perverse type of sexuality they show and regard this as by no means the least psychogenetic factor to be dealt with. Since it is becoming more and more evident that the psychopathology of epilepsy should and doubtless will receive greater study, I thought it would serve a useful purpose in bringing forward the histories of two cases who were admitted to "D" Block, from France as epileptics who showed details of great interest. "D" Block being only a Clearing Hospital, any deep study of the cases was unfortunately not possible but sufficient was elicited to show the great importance of a history taken from a psychological standpoint. Unless the medical officer is to some extent versed in the modern trends of modern psychopathology, much important material in the anamnesis will not be elicited and the very mental factors which more or less tend to be the 'fons et origo' of the disease will not see the light of day. The first case exhibited major attacks and the second was an anomalous case of petit mal with amnesic fugues. Much interest centres round the fact that both cases exhibited symptoms of great violence, which falls in with the theory that an epileptic attack in some way is an exhibition of intense resentment previously repressed.

Case 1. J. C. A bandsman, aged 34 years, was admitted with the following history from France. "He has had epileptic fits and after a few clonic spasms he becomes maniacal and once had to be held down for three hours. He says he has had outbreaks like this before. They start quite suddenly and in the attacks he is injurious to others. He was quite unconscious and had no recollection of anything afterwards but is told he has been violent. Later he was perfectly normal."

On admission he was put to bed and kept under special observation in case an attack might suddenly come on and an accurate report obtained of all that occurred. He stated he felt quite well and during the few days he was here no fit or any untoward symptoms were seen.

The fact of his showing special violence at the end of his convulsion and his remaining unconscious such a length of time induced me to enquire carefully into his psychological history, when the following interesting data were obtained.

He was the eldest of sixteen children and had had little or no serious illness with the exception of some of the usual childish

ailments. He was specially attached to his mother who was always very kind and good to him and his love and dependence on her was all the greater because of the intense severity of his father. His father's treatment of him was so cruel that he spent a very miserable childhood till his father died when he was twenty-two years old. He states that his father was very puritanical and that every harmless pleasure was suppressed; for any trivial fault he was punished unmercifully, and on one occasion he was laid up for three months because of the brutal thrashings he had received. The father was once had up before a Magistrate's Court in consequence of the treatment of his son and heavily fined. He has a highly vivid recollection of the intense resentment he felt against his father; this was intensified at times by the friction caused between the parents because of his father's attitude towards him which brought much misery to his mother. Nevertheless, he repressed this resentment because he could not help feeling that his father thought himself to be just and his upbringing had very early and deeply ingrained into him the idea of the injunction—"Honor thy father and thy mother that their days may be long in the land, etc." The first unconscious attack occurred twelve years ago. Investigation shows that a few months previously he had quarrelled with a friend and they were starting to fight when his father, who was ill, came into the room to separate them. Without realizing what he was doing in the heat of the moment, he struck his father in the face causing blood to flow. He has never since been able to forget his father's expression as he said "My son, I never thought you would do a thing like that." Ever since that event, which was such a psychic trauma to him, he has felt that if ever he meets with the victim of his original quarrel through whom he hit his father, he will kill him if possible and "swing for him." "It's me or him." Two days after this incident his father died of pneumonia. For many months the patient suffered from great depression and insomnia and ever since has had a recurrent dream in which he saw his father with a contused and bleeding face. It was a few months after his father's death that he had another quarrel with a friend and the first fit came on in which he was very violent. He says he first felt a great weakness come over him and he recollected nothing more. A few years later another quarrel ensued when an exactly similar attack occurred. His health was now quite good but he always felt irritated against his superiors when found any

fault with but never reacted with any show of emotion. He enlisted in the army and became a bandman attached to one of the regiments. He got on very well until he felt himself not treated justly by his Bandmaster and on matters coming to a head he had three unconscious attacks in each of which he showed great violence and for which he was sent home here.

The patient was well educated and readily told me the above history on enquiry. He was markedly egotistical in his outlook on life and evinced a narrow superficial religiosity. There was evidence of tremendous maternal fixation and it is important to note that there hardly ever had been any sexual desire and no sexual intercourse ever had taken place though onanistic practices had occurred at times. We see plainly shown here psychosexual and emotional factors of an abnormal type which evidently had intimate relationship with the outbreak of his unconscious epileptoid attacks. The natural phase of paternal resentment because of the strong maternal fixation was roused to a maximal height by his father's stern and cruel treatment. But this very severity emanating from one who after all was his father and therefore a great man to the childish mind, combined with the fact that his strict orthodox and narrow religious upbringing could only tend to inculcate a submissive attitude on his part, made repression of any emotional reaction a natural procedure. As time went on the pent up and repressed longing to "get his own back" must have been much added to seeing that his mother had to share his burden. Is it any wonder then that at the psychological moment of his quarrel when his father was robbing him of his lawful prey as it were, that his "unconscious" should impel him to give that blow which the next second was seen to be so revolting to his personal consciousness? The recurrent dream which filled him with so much horror shows how conative the repressed material was and one does not find it difficult to understand how, when the old associations were lighted up by fresh quarrels, the unconscious should take advantage of some temporary lack of inhibition to release its flood of surcharged emotional resentment. Yet even at these moments the personality was such that the violence could only occur outside the vista of personal consciousness and hence the unconscious attacks described. Each opponent and lastly the Bandmaster who was his superior officer, doubtless were surrogates of the father image. His threat against the life of his first opponent shows how inadequately he still views the past and



how abnormally he will probably react given certain situations. His attacks will certainly recur when he has to face special necessities for adaptation but it seems a case that modern psychotherapy should be able to do much for.

Case 2. Private R. H. was admitted to "D" Block from France labelled "Minor Epilepsy" with the following history—"One night lately he seemed to be in a state of somnambulism, called up some men and said the Commanding Officer wanted them at once. He came to in a dug-out half a mile away the next morning. He had had excited phases in which he was very violent without being able to restrain himself."

On examining him he was found to be a particularly intelligent man of 45 years of age who had good insight into his abnormal condition and who was extremely anxious to have his case understood with a view to relief from symptoms which caused him much distress and brought him into conflict with the law continually. He gave the following details of his past life. He came from the North country and was a traveller in art goods. He had been married but they had not lived together for many years. He was always a spoilt child and was never chastised in anyway but always got what he wanted. If thwarted he would break out into violent fits of temper. At school he was very smart but could do nothing in the presence of the Inspector. From his earliest boyhood he kept to himself and was a great day-dreamer, the content of his dreaming being always connected with the imperative necessity of making money which nevertheless must be given away when obtained. No history of any physical illness at any time. The first major indication of his abnormal mentality occurred when he was about 16 years of age. He recollects finding himself being shaken by a policeman in the main street of his town about a mile from his home. It was in the early morning and he had only a shirt and trousers on but no boots or socks. At nineteen years of age he started studies to enter the Church of England but his parents were Catholic and his mother being so upset at his desire he gave up the idea; he describes this as the greatest disappointment of his life. He soon felt a terrible temper developing. At the age of twenty he went to work for a time at a mill where one of the men used to find delight in bullying him and he can only recollect, after a special torment and warning his persecutor, six or seven people pulling him off the man, whereupon a fit ensued and he was taken home. Matters went fairly well with him for some

time with the exception of periodical outbursts of temper from comparatively trivial happenings. These he says were quite uncontrollable and of them subsequently he had only a hazy recollection. About the age of twenty-three he began to take up his occupation of travelling auctioneer in art goods. He felt that he must travel and get continually into fresh surroundings and ever since he has not stayed in his own town for three consecutive days. He was very successful in his business, making anything from £6 to £10 per week. His parents died about fifteen years ago and his father's death greatly affected him; acute depression and insomnia supervening and lasting nearly twelve months. Thirteen years ago he married and a child was born but the result was never happy and he soon left her. Shortly afterwards an event occurred which has had a marked effect on his abnormal mentality. He says that he found a man in very poor circumstances, financed him and took him into partnership but later finding out that he was a "bad lot," the partnership was dissolved but in the settlement the patient was accused of embezzlement and though he strongly protested his innocence, he was arrested and sentenced to three months with hard labour. This event seems to have caused intense resentment against the world and since then he has kept more to himself than ever. It seems that he has endeavoured to "get his own back" later in a curiously distorted way. He would feel impelled to take a train journey and visit some city a hundred or two miles away and calling at some house would book a bogus order. He would be in possession of a fair amount of money at the time but he would insist on the person with whom he was doing business paying him a deposit on account. This deposit was always extremely small and never exceeded three shillings. On his return home his recollection of all that had occurred would be very hazy and he had an idea that he had done wrong but nevertheless would feel some relief and gratification. The result was always the same. He would be arrested and sentenced to a term of imprisonment varying from one to six months. He came into conflict with the law once in another way. He was walking down the main street of a large city once when he suddenly seemed to hear something telling him to break a window. On looking around he saw no one who could have spoken to him. He felt very depressed and his memory then left him but he awoke from his stupor a moment later, heard the sound of falling glass and found himself being very violent to a policeman who was en-

deavouring to arrest him. As he came more to himself, he grasped the situation, apologized and went quietly to the police station where he received a sentence of a month's imprisonment. For over twenty years he has had at times vivid hallucinations which usually foretold some event. An hallucinatory episode is related which is of great psychological interest. He had been keeping company with some girl for some years and one day while sitting at home by himself the door appeared to open and a man came in (whom he knew was fond of this particular girl), sat down and suggested a race. The girl then appeared in the distance and he saw a tree with one red rose on it. He presumed that the race was for this flower. He saw himself racing and he beat his opponent by a few yards and clipped the rose off. Both of them then walked back to the girl who smiled but just as he handed the rose to her, every petal dropped off! The meaning of this vision seemed clear to him. He had beaten the other man who was vexed and pointed to the petals lying on the ground, saying, "There! You only had it for a time." The meaning was that he wouldn't keep the girl long and he didn't, for a week or two afterwards they parted for good though there was no quarrel.

One may conjecture that such a psychopath as our patient would not adapt himself to active service conditions well and so it proved. Since enlistment amnesic wandering attacks and uncontrollable fits of violence have been very frequent and he could not help but resent anyone forcing his company on him. He recollects going to bed one night and finding himself the following morning about a mile from his billet. At another time he went to his Medical Officer who said there was something wrong with his heart and he was sent to a hospital at Boulogne. When convalescent he took a walk and wandered down by the quay. He had some money with him and he remembers buying some fruit and giving it to some wounded who were being placed on board a ship. After that there was a blank and when he came to himself he was in London but how long he had been there he didn't know. How he got on the boat is a mystery to him. He at once gave himself up to the police, was taken back to France and given twenty-eight days F. P. No. 1. These fugues recurred and he was therefore sent to Netley. On arrival he was transferred to the Neurological Section where after a time he appeared before a Medical Board and was discharged from the service.



While an inmate his main symptom was that of periodic feelings of general resentment and if occasion offered itself he knew he would become violent. Once he entered the hospital grounds from leave a little late, and in a discussion with the police one got hold of him, whereupon great violence at once manifested itself and he quickly floored six of them. There was some subsequent confusion, regret for what he had done but at the same time a great feeling of relief. He has returned to civil life where it is certain that his abnormal proclivities will soon bring him into trouble again.

The patient told his story well and in great detail. He complained greatly and with justification, of the frequent punishment he had undergone and of being misunderstood. He describes his time in France as being one of physical and mental agony. He is of an egotistical type and is fond of boasting of his strength, his wage earning capacity and of the many things he can do better than his fellow men. He is not shallowly religious for since his great disappointment of giving up his theological studies, all interest in such matters have disappeared. Had not his history been largely confirmed by others I should have been inclined to doubt him because of his reiteration of his being so honest in his statements, saying he can produce proof and so often using the phrase "on my honour." There was no special abnormal sexual traits. His wife, he states, gave him syphilis which has tended subsequently to keep him from women. He is a heavy cigarette smoker, consuming as many as fifty a day. Alcohol he knows has a very bad effect on him and so for many years he has been very moderate in its consumption. In his leisure he mostly reads but can play the piano and violincello. He does not dream much and when he does no anxiety is displayed in them. The only company he ever has is that of a dog, of which animal he is very fond. Cats he hates and when young he was very cruel to them and used to torture them terribly. At this time his hates and cruelties were much in evidence. One younger sister was a special victim and once in a rage he tried to poke her eyes out.

While in the hospital he felt fairly well on the whole but always slept badly and on rising in the morning he would feel dizzy for a time. During conversation he would now and again lose the thread of his thought content and his mind would be a blank for a moment. Headaches occur frequently, especially after any excitement. From his relations most of his history

was confirmed. Three cousins suffered from epileptic fits and an aunt also; an uncle died in an asylum; his mother was "nervous" and his father had "fainting attacks."

This case shows various pathological characteristics and by no means demonstrates uncomplicated epilepsy. The anamnesis is extremely interesting and shows the importance of obtaining a full psychic history without which no possible insight can be gained into the mechanisms involved in the production of the abnormal state. The patient shows much that may fall in with the epileptic "make up." From his earliest life he was preponderatingly self-centred, his interests became more and more egotistical and he found himself able to adapt less and less to his social environment. When a child, thwarted wishes brought about tantrums and violent outbreaks of temper which, in later years, from trivial stress became uncontrollable violence while in a more or less confused state. Day dreaming became habitual, while the unconscious desire to get away from reality showed itself in other ways. The nomadic life was doubtless instigated in order to obtain continual stimulation for novelty and indicates that some interest was to some extent objectively sought. His breakdown following his father's death shows that the "family romance" as White terms it, was responsible for some part of his abnormality but there was unfortunately no opportunity of analysing this point. His conviction and imprisonment on the first occasion brought a storm of added resentment against the world which accentuated his psychopathic state. His states of violence were, in all probability, inadequate reactions to intolerable situations and energized largely by complexes repressed in early life, while his fugues were flights from reality, guided, may be, by wishes we know not of. It should be noticed that he evinced marked sadistic traits in early life, so that his liability to violence is the less to be wondered at. If one accepts the theory that in such cases there is regression to a primitive mentality comparable to that of infancy, one might view his hallucinatory symptoms as a hark back to the period of magical-hallucinatory omnipotence which is regarded as the stage of first compromise towards reality after birth. With his bad heredity and at his age his case does not look hopeful from a therapeutic point of view but some amelioration at any rate should ensue from a thorough analysis and gradually abreacting and sublimating energies now only seen in a distorted form.

# THE ILLUSION OF LEVITATION

*Part One. A General Presentation*

*Lydiard H. Horton*

## *Introduction*

*The following report to Dr. Prince is largely self-explanatory. It was written in every way as the text implies, and without any settled idea of publication. It was penned at one sitting, and was read in manuscript by Dr. Prince to his associates in the Journal of Abnormal Psychology. He then suggested printing the letter as it stood in its present form, barring a few omissions which he, in his editorial capacity, thought advisable. Accordingly a few unessential points were omitted, and the paper made up as here seen.*

*The desire for a more complete confirmation of the guesses led to a postponement of publication at the writer's request. Since then further evidence has come to hand sufficient to warrant publication. The evidential matter, such as it is, will be presented in later instalments.*

*It will be realized by students of abnormal psychology that the illusion of levitation plays a considerable part in the case histories of mystics and of certain classes of the insane. On the other hand, states of so-called ecstasy have in many instances a definite biological, and even therapeutic value. A proper distinction between these two extremes should be made available to the psychiatrist.*

COLUMBIA UNIVERSITY, NEW YORK CITY.

*April 17, 1912.*

**My Dear Doctor Prince:**

Some months ago in a conversation on the subject of dreams I told you that I had worked out what seemed to me a plausible and well-nigh scientific explanation of the well known Flying Dream. I promised at that time to send you an account of the experiments which gave me the clues to this phenomenon. But the difficulty of finding time to present the matter in a thoroughly scientific way has loomed so large that I have been turned away from the task time and time again, more or less intimidated at the sight of the many chances for controversy that opened up.



Now, however, rather than to have my intended contribution nullified by default, I have decided to sit down and write out in frankness and *naïveté* whatever shall come to the point of my pen.

In this first statement I renounce any intention of fortifying myself against misunderstanding or protecting myself from the thousand missiles of thought or half-thought which might be hurled at my thesis by an audience of skeptics in psychology. For I am writing to you; and I am not afraid of, but should rather welcome the sort of criticisms from you that I have already been privileged to obtain and which have served me in such good stead for several years.

#### ORIGIN OF THE EXPERIMENTS

To begin with, I must tell you that the experiments which yielded what I call my clues to the Flying Dream were not conducted with any idea of explaining or reproducing the *illusion of levitation*; this being, of course, the fundamental fact in the dream experience. My experiments were indeed begun and virtually completed before I had any thought of using the data, which they afforded, as a means of explaining the illusions of levitation.

The experiments were begun in 1907, prosecuted in 1908 and 1909-10, and it was not until 1910 (September) that it occurred to me to draw any conclusions from them as to the Flying Dream. In the meantime, however, in 1909 and 1910, I had consulted you as to the experiments themselves, but without any reference to the dream.

It is now in order to say a few words descriptive of the experiments and then to call your attention to the results which bear upon the illusion of levitation.

#### OBSERVATIONS OF NATURAL SLEEP

Mere curiosity as to the phenomena underlying Sleep was my motive for beginning these experiments. Having read a great deal about "*le sommeil provoqué*" and finding little that seemed definite, I resolved to observe sleep as best I could myself and to cut loose not only from the literature of the subject, but also from all directions and rules regarding the production of *artificial sleep* or of any sort of *hypnotic state*.

To be sure I could not cut loose entirely from what I necessarily remembered of the way sleep is induced. I did not, for example, try to get my subject to sleep while standing(!) nor

did I fail to recognize that even a reclining subject will not readily go to sleep unless his thoughts are in some way directed into the line of rest.

It seemed not unreasonable to assume that all subjects should be required to relax their muscles and to make up their minds to give over voluntary effort. In these two features of rest or sleep I could not very well have departed from the familiar procedures of sleep-induction—as illustrated in the nursery and in the sick-room.

But when it comes to the details, I may say that I broke every rule I could think of for “artificial” sleep. I did not, of course, deliberately *prod* my subjects or present exciting ideas. But I made no attempt to fatigue their gaze; I did not tell them to go to sleep nor impress them with any desire on my part to have them sleep or even close their eyes. The only thing I did insist upon was that the period of the experiment, the pause in the day’s activity, was to be regarded by them as devoted or consecrated to *leisure*. This idea of leisure, of freedom from the necessity for action, I emphasized not by repetition or forcible suggestions, but by quiet argument and exposition, carried on in a conversational tone.

#### NOT HYPNOSIS BUT “SOMNOSIS”

It may be objected that my procedure too nearly resembled hypnotic suggestion to have afforded any light on normal sleep. But the precautions I took, the verbal caution I observed and the naturalness of the whole setting led me to believe that I was producing NORMAL SLEEP UNDER ESSENTIALLY NORMAL CONDITIONS.

In only two cases did I observe anything that looked to me like *hypnosis* and in these cases the subjects were promptly made to “come out of it;” *fascination* would describe this condition, and I warned subjects against it.

Otherwise the rest-states that I obtained were such as one might observe any day, I believe, on the deck of an ocean steamer, where in fine weather a siesta is being enjoyed by care-free individuals who have been made as comfortable as their particular degree of egoism and the aid of their servitors would allow.

Under just such mental conditions as are implied by the foregoing analogous instance, did I produce the rest-states, whose phenomena I have from time to time reported to you.

Without going into all the details, I may say that the striking feature of this sort of induced siesta was the thoroughness of the rest and the ready yielding of the subject to my persuasions. For in 70 experiments on 35 subjects, only three subjects and five experiments indicated a failure to *surpass* the rest obtained in ordinary sleep—meaning sleep obtained under conditions where there is no prearranged experiment.

These non-hypnotic results I attribute to the fact that I was successful in eliminating my own personality as a possible interference and that at the same time I left to the subject the most complete control over his own thoughts and over his critical judgment. In other words, I avoided *suggestion* in the technical sense and, instead used the art of suggestion in Francis Bacon's meaning of the word: as a mere "calling to mind" of restful topics.

To put this briefly, "Freedom of the patients' will" was my watchword. Thus the complex relations implied by hypnotic "rapport" and the "mono-ideism" of Braid and the supposed dependence of subject upon operator were eliminated quite as much from these experiments as they ever can be, say, from drawing-room conversation.

It is no mere idealization of the past that makes me say this, but a genuine memory of having from the beginning of these experiments sought to guard against what is technically called "suggestion;" thus avoiding artifacts.

The results were gratifying to me in that I was enabled for the first time to get an answer to my question as to what might be THE NORMAL COURSE OF THE REST FUNCTION.

#### STRIKING FEATURES OF PRE-SLEEPING PERIOD

Most surprising to me was the fact that many of the phenomena of "*le sommeil provoqué*," which are frequently spoken of as produced by "suggestion" are evidently part and parcel of the *relaxation* which goes with sleep.

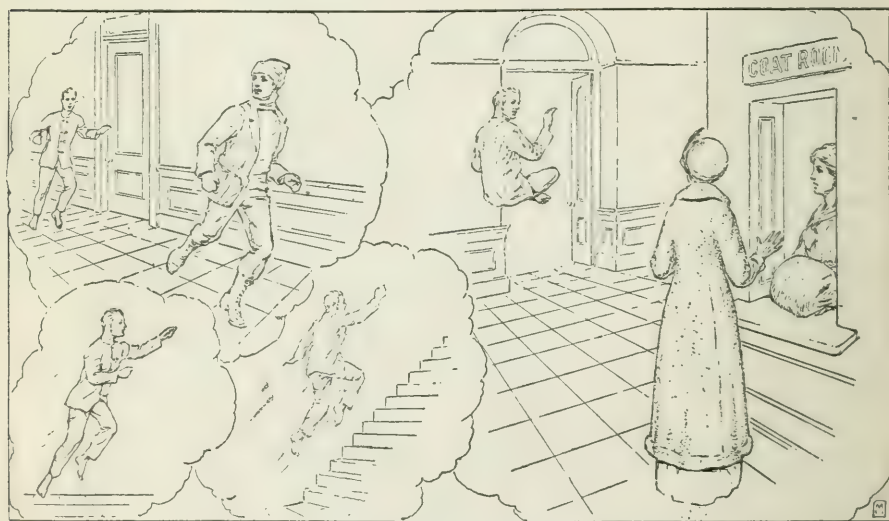
I mention in particular a sense of *weight*, often followed by a sense of *lightness*; and more especially an invasion of warmth which affects the skin as if the body were felt to blush, so positive is the phenomenon. Repeatedly have I observed this even when no hint or even expectation of the phenomenon was present in my own thought or speech. [Subjects' reports *during siesta* were sufficiently definite to make anything like instrumental blood-volume records quite supererogatory.]



Having almost a "phobia" for artifacts, and a rooted objection to the fatuous practices of many "suggestionists" I tested this matter over and over again. I found that there was a regulated orderly procession of bodily events in nearly every case where a normal person lies down and makes up his mind that he will remit voluntary effort. This indeed is the attitude of almost anyone when going to bed, as Boris Sidis has pointed out in his *Experimental Study of Sleep*.

#### A REGULAR ORDER OF PHENOMENA

Ordinarily, the phenomena of the *pre-dormitium* are not intensively observed, as they were by me, and I am sensible of the fact that you are one of the few psychologists to whom the value of such observations has stood out clearly. It is, therefore, unnecessary for me to expatiate on the distinctiveness of the state of *pre-dormitium*.



#### ILLUSION OF LEVITATION IN DREAM FORM

##### CAUSED BY VASOMOTOR DILATATION OF SKIN VESSELS

*Note Scenes: Dreamer with insufficient clothing pursues Smith, warmly clad college friend, meanwhile treading cold tiles. Presently, losing sight of Smith, attains unexpected facility in soaring motion, rising from tiling up steps without touching, till he travels through upper hallway and triumphantly levitates past coat room, waving hand airily at persons engaged in "checking" furs.*

The order of events to which I must now more completely refer seems to be the following:

1st, The relaxation of the voluntary muscles, allowing the bodily posture to adjust itself to the supporting couch or chair.

2nd, A decrease of muscle-tonus to a point below the ordinary postural tonus, in which the hand or the arm becomes almost flaccid and in which there is NO TENDENCY TO MAINTAIN POSTURE as there certainly is in stage 1.

3rd, A still greater relaxation in which the feeling of self-activity diminishes and in which the subject, altho' fully awake, is surprised and pleased that he does not *feel* desirous of moving or acting. This is the true passive state of the muscles and some subjects describe themselves as "limp as a rag;" "feeling like boiled macaroni," or like "a quart of molasses poured on a slab of marble."<sup>1</sup>

4th, Beyond this stage comes the change of the breathing, although sometimes this cuts into the stage of medium relaxation (2nd).

This breathing is simply respiratory-center breathing, initiated usually by an "asphyxic reflex" (*e. g.* one subject says "I am so lazy I don't want to breathe") after which the breathing often shows the perfect rhythm of true vagus regulation. The pneumographic tracings plainly show the temporary suspension and then increase in regularity of breathing.<sup>2</sup>

I may be wrong in saying that I noted the breathing to be not only slower, but in some cases deeper. At any rate, the phase of *expiration* is sharpened and the subject reports that he felt more free in his lung action. "My chest just *has* to go up and down!" This feature is interestingly illustrated by the effect on speech, when it is attempted. There is a tendency for a slight gasping as if the breath disregarded the checks imposed upon it by vocalization. When the person's eyes close and there is no attempt at expression, this does not show itself, of course. But even then there is apt to be a "sigh of relief" quality in the one, two or three breaths which mark the "retiring point" as it were of *psychic influence over respiration*.

(In my opinion the systems of the orientals for trance induction, bear the earmarks of this sort of experiment. Further, there is no doubt that deep breathing helps to initiate the independence of the diaphragm and of costal movements from the mental influences.)

5th, The last point is the vaso-motor dilatation, affecting the surface of the body. This is sometimes very marked and I

<sup>1</sup>A recent version is "emulating the dish rag."

<sup>2</sup>Most of the observations, however, were conducted without apparatus, as only highly trained subjects are able to feel natural or "at ease" when harnessed up to recording mechanisms.

have in my own case, known it to happen with such rapidity as not only to give me a tingle all over the body (as after a shower bath) but to bring on a sense of lightness in the head and an illusion of falling, quite comparable to that of the falling dream.<sup>3</sup>

Now having given the principal features in the program of bodily events during relaxation, let me assure you again that I have excluded in almost every case any possibility of artifact. I regard these manifestations as the NORMAL PHENOMENA OF THE REST FUNCTION which in turn I regard as an innate tendency of the nervous system to reduce its tonus under the conditions of voluntary repose. It is as if the fundamental system and the medullary centres entered into a conspiracy to throw off the yoke of the cortical centres.

#### MUSCLE-SENSE AND KINESTHETIC REPOSE

The greatest changes in self-feeling observed by my subjects were directly referable to altered Kinesthetic sensations, or rather to a remission of them; and these changes I can closely relate to the Kinesthetic images which I employed as a means of preparing the mind for the state of balance and equipoise which was so desirable and so frequently realized in these experiments. So far as its being "suggestion" is concerned, it was of the type afforded by absorption in works of architecture or sculpture.

For instance, a quiet observation of the lines in the Statue of the Winged Victory—or similar works of art—can produce states of attention and bodily easement which closely resemble the mental attitude required in my experiments.

The interest of the matter (and my reason for dwelling on it) is that the Kinesthetic repose and the muscular relaxation attained by my subjects seemed to be bound up with the physical phenomena of sleep-at-its-best. The novelty lies in the fact that these phenomena, as detailed above, were all PRODUCIBLE BY MEANS NOT HYPNOTIC nor commonly classified under "suggestion." The curiosity of the matter lies in the fact that most of the subjects demonstrated the phenomena which are characteristic of sleep on the physical side *before* they lost consciousness—barring of course the closing of the eyelids.

At once you will want to know if this was not merely a case

<sup>3</sup>In conversation with Dr. M. Allen Starr, professor of Neurology at Columbia University, I submitted a vaso-motor theory of these dreams; and he was free to say that it presented nothing inconsistent with our knowledge of vaso-motor phenomena.



of "hypnoidization" or if the subjects were not in a state of "abstraction." My answer is that three out of thirty subjects showed abstraction to a slight degree, but that only one showed the regular hypnoidal condition as described by Sidis.

#### RELAXATION WITHOUT DISINTEGRATING CONSCIOUSNESS

The reason for this (I think) is that I tried to keep my subjects' thought in an orderly self-conscious state as long as possible, and that I acquired the knack of holding their attention stable and unified. This came by long practice not only on others, but on myself. For I have personally experienced all the "somnotic" (so to say) phenomena that were ever reported to me by my subjects. And they have usually come to me as surprises. To put the thing in a nut shell: there is a certain state of the attention which is neither *fascination* nor *reverie*, but is in-between and which is so perfectly neutral as regards voluntary effort that the automatisms of the body become free to assert themselves—and do.

For lack of a better term [and to avoid the now confusing name *Twilight State*], I have called this intermediate neutral ground of attention, the "Mid-State." And I have studied with more detail than I can bore you withal now the type of ideas and the modulations of discourse which lead the passive subject into this Mid-State and enable one to take with him all the valued privileges of consciousness and self-perception, while benefiting by complete physical repose.<sup>4</sup>

The nearest approach to a description of this region you will find in Ethel D. Puffer's chapter on the "Esthetic Repose." And yet the exact quality of the state I have met with in my subjects, which I call "Kinesthetic Repose" is not actually covered by Miss Puffer's excellent presentation. But as you might expect, there is a striking similarity between the phenomena of the "Esthetic Repose" and of the "Kinesthetic Repose." You will at once, on comparison, realize that both are breeding grounds for the illusions of levitation that I started to speak of.

Now here is where I come to the point.

#### EXPERIMENTAL ILLUSIONS OF LEVITATION

Out of the thirty subjects who relaxed completely and of

<sup>4</sup>A re-reading of current physiological works on Sleep would be required to pick out the scattered statements that hint at what I am calling to notice: *the possibility of Body-Sleep without Mind-Sleep*. But see "Psychology of Beauty" by E. D. Puffer.

the twenty or so who retained consciousness after they had completely relaxed, eight of them reported illusions of levitation.

One of them jumped out of the chair and was afraid to continue the experiment; so realistic was his apperception of a soaring motion.

Another, this time a woman, gripped the chair in the momentary belief that she was floating away; two others reported that they felt "caught up" by a wave but that their reason reassured them at the time.

One other enjoyed the sensation so much that he took it as a matter of course and supposed it was part of the "treatment." One other said that if his head had been as light as his body he would surely have floated away. He reported himself "just floating away," the sensation being overwhelmingly real.

Now these "testimonials" were not solicited and were spontaneous expressions due to interest in the peculiar sensation and the illusion it led to. No suspicion of "suggestion" can attach to these six cases. But in the other two cases, I did perhaps make a half-suggestion. On one occasion, influenced by my own experiences with "levitation," I started in a general way to describe, what it was like, whereupon my subject interposed: "But it has come already." At the other time the subject simply answered my leading question with: "I felt light as a feather!"

In addition to these eight cases of a positive nature, there were other cases in which I could tell from the rather vague reports of the subjects that they experienced similar sensations. They failed to attribute to them any special meaning or imaginary setting. What they felt was a sensation of lightness and of ease; and I believe that this is essentially the genesis of the illusion. But its great accentuation in the extreme cases must come from the agreeable warmth and diffusion of sensation which accompanies the vaso-motor relaxation. (Let it be remembered here that many "subjective" sensations are on this point corroborated by plethysmographic studies. Cf. Howell's.)

#### GUESSES AT THE PHYSICAL EXPLANATION

Having experienced all these phenomena repeatedly, and having before the mind's eye a complete series of cases illustrative of all the gradations, beginning with mere lightness in the third stage of relaxation, and passing insensibly into the full blown Flying Dream, perhaps I may throw scientific caution momentarily to one side and state my opinion, which is also my experience, and in any case rest on experimental facts.

The genesis of the illusion of levitation does not come from the diminution of *tactile* sensations. Whether due entirely to an inhibition in the course of the pressure sense tracts (deep sensibility, I mean), or merely to lessening of actual muscle pressure, is a question. I think the latter is a great factor but that the sensory "inhibition" is real too. (Subjects say they feel "feathery" in their contact with the clothes and couch). This of itself does not become the adequate or sufficient basis of the illusion of levitation till the vaso-motor relaxation supervenes. Out of the combination, there arises the bodily "stimulus" (negative in this case) which becomes the foundation of the illusion of soaring. [*The subject reacts to absence of sensation.*]

As to the rhythmical sensation which pierces through or relieves the "numbness," I can only guess (yet with some conviction) that the different angles of travel (e. g. whether horizontally or vertically) are "apperceptions" dependent upon the form of the blood pressure waves which are perceptible at the time.

At the risk of doing too much guessing, I suggest that the respiratory wave usually influences the flights where the "soaring" is moderately high. As to the vertical flight, it may be due to the staccato sensation of the pulse-wave, and the more horizontal flight may be connected with longer or secondary Traube-Hering waves such as observed by Mosso (Cf. Encyclopaedia Britannica, article "Sleep.")

#### THE ILLUSION AS APPERCEPTIVE ERROR

As to the mental content of the illusion, it is simply an apperception by analogy of the meaning of bodily lightness. (Principle of reaction by analogy). As to the element of wish fulfilment in the dreams, my observations in cases of actual Flying Dreams in ordinary sleep, show that there is often a sense of pleasure and a desire to control the imagined flight. A certain pride in it may be manifested; also a desire to "show others how." But this desire is not, as has been supposed by some, connected with any erotic tendency. (Freud.) This is, if my studies in this connection mean anything, an expression of the "appetite for repose." The dream satisfies the wish corporeally at the same time that it symbolizes it as a flight! It is not necessary to explain the flight as a desire to fly, or to be free. The only law of "symbolism" needed to explain the flying illusion, is inference from analogy, or apperception through similarity.



We know so little about DEEP REPOSE that we try to explain its sensation in some fanciful way, such as *flying*, simply because it is the only concept that reconciles the sense of detachment from bodily support (lessened pressure sense) with the feeling of rise and fall caused by the changing blood pressure.

The psychic state as a whole contains many interesting points that I have not yet brought out in this letter. For this is a mere outline. I may say, however, that each element can be referred to a specific source and that nowhere is there necessarily any erotic element, as suggested by Freud and such as, according to my studies, appears in *skating* and *sledding* or *sleighing* dreams. Of course I do not pretend that there is any mystical barrier to preclude a mere coincidence between this restful dream and some erotic fancy.<sup>5</sup>

#### THE SOURCES OF MYSTICAL QUALITY

The Flying Dream, in my belief, borrows its interest and fascination from a realm of experience which today lies curtained over by inattention, by a mist of drowsiness, I might say; for we approach this phenomenal world of repose usually only when drowsy and when the consciousness is in a fragmented condition, with powers of judgment and observation in abeyance.

Now, the *conscious* observation of the phenomena in question becomes possible through the cultivation of the state of regulated attention that I have called the "Mid-State." This state leads readily to the passive attitude which I have referred to as the Kinesthetic Repose and which is not far removed from the Esthetic Repose.

The attainment of the corresponding physiological rest-states is an end with which mankind have, I believe, largely concerned themselves at all times. But the tendency has been toward a mis-valuation of the means (artistic "support," erotic "support") whereby these states have been made interesting.

I mean that the intermediate state between waking and activity has become interesting to people, almost exclusively when met, not Simon pure, but as incidentally determined by some "fascinating" matter, like art, dancing, hypnotism or the rapture of worship.

For it usually requires something more than scientific interest to hold the average subject to so paradoxical a task as

<sup>5</sup>Repose has pleasures *sui generis*; but in those who, by definition, hold all pleasure to be "sexual," even rest-sensations might be apperceived as libidinous.

that of tasting pure repose for its own sake. The unseizable quality of an exercise in relaxation has required of its adepts and devotees that they should go at the matter as if it were something else they were doing and getting the relaxation as a by-product. Accordingly, outside experiments like mine one rarely meets relaxation except under a disguise. Thus I believe that a great many elements of religious or mystical experience hitherto regarded as social or sexual will be found to pertain more importantly to physiological rest-states.

All the arts of Recreation have, as their goal, of course, essentially the attainment of a better balance in the Rest-Function; to that extent being physiological pursuits.

#### PRACTICAL CONSIDERATIONS

I believe that the cultivation of rest-states as such is destined to play a large part in Applied Psychology before long. It is, however, a realm of experience where the gold has been too often mingled with the dross. It is a field of interest where fakirs have abounded and into which many trends of degeneracy have entered at one time or another. I regard this as the reason why scientists have fought shy of the psychophysical problems in question. But these problems are none the less worthy of attention, from the standpoint of Biological Psychology.

In view of the many difficulties I have found in this problem I want to thank you for the encouragement you have given to these studies and for having been the one to make it seem worth while to go on toward a definite conclusion. As to the ultimate use of this work, I shall report again.

Meantime, believe me,

Yours very sincerely,  
L. H.

*(To be Continued)*

## REVIEWS

### THE CHEMICAL DYNAMICS OF THE CENTRAL NERVOUS SYSTEM.<sup>1</sup> A RÉSUMÉ OF THE WORK OF T. BRAILSFORD ROBERTSON

Dr. Robertson's experimental work is of unusual interest by itself and his application of his results in the explanation of the phenomena of hypnotism, sleep, etc., adds to the attractiveness of his papers. Further a good illustration of ingenious inductive reasoning is found in his method of forming hypotheses.

In formulating his theory of the chemical processes underlying nervous activity he begins with the fact well known to psychologists that mental work at first facilitates performance and later depresses it. In committing a verse to memory, for instance, it is common experience that with the first few repetitions there is progressive improvement in performance, but if the effort is continued too long, errors occur in lines that a moment before were correctly given. Indeed this principle is not confined to the nervous system, but is found also in the "staircase" contraction of voluntary muscle and in the rapidity of growth. A natural deduction from this principle is that each performance leaves some sort of "trace" that affects the succeeding performance. According to Dr. Robertson this "trace" may be either static *i. e.*, consisting of a structural alteration in the tissue, or dynamic *i. e.*, chemical. He brings forward a number of objections to the first alternative, and so the second is left for consideration. In the case of the nervous system, then, there is, according to this conclusion, underlying each impulse a chemical reaction that somehow leaves behind it a "trace." To account for the early facilitation and later depression it must be assumed that the reaction at first progressively increases and later becomes slowed. Two types of chemical reaction of this sort are known,—the catenary and the auto-catalytic. Only the latter corresponds with the symmetry and time relations of the curve of memorizing.

That nervous activity is really determined by some sort of chemical reaction is indicated by a number of facts. In the first place it is well

1Robertson T. Brailsford,

Sur la dynamique chimique du système nerveux central. Archives internationales de physiologie, 1908, VI, 388.

On the biochemical relationship between the "staircase" phenomenon and fatigue. Biochemische Zeitschrift, 1908, XI, 287.

Further studies in the chemical dynamics of the central nervous system, (1) The time relations of a simple voluntary movement. Folia neuro-biologica, 1912, VI, 553 Ib. (2) On the physiological conditions underlying phenomena of heightened suggestibility, hypnosis, multiple personality, sleep, etc. Id. 1913, VII, 309.



known that a chemical reaction is accelerated much more than a physical by the application of heat. A rise in temperature of one degree will rarely increase a physical reaction over two per cent while a chemical is usually increased over ten per cent. Biologists frequently use this distinction in determining whether a reaction is chemical or physical. Dr. Robertson carried through a series of experiments trying the effect on the rate of respiration of the temperature of the medulla, and found that the results indicated that the activity in the respiratory centre was chemical in nature rather than physical. So also the effect on the heart rate of the limulus found by Carlson to result from changes in the temperature of the cardiac ganglion is in favor of the chemical view. With some nerve impulses, however, the observed effect of heat is intermediate between that to be expected with a chemical reaction and that of a physical. The result is what should be found, if the reaction were in part (one-fourth) physical and in part (three-fourths) chemical. The author concludes that such is probably the case, the cellular component being chemical and that of the fiber physical (diffusion).

Further support of the chemical theory is to be found in the relation of nervous activity to acids. By using a very delicate indicator the author was able to demonstrate that acids are formed in the nervous systems of frogs, if the skin is subjected to prolonged stimulation. In some other experiments he found, further,—and his results have been in part confirmed—that acids applied to the respiratory center increase the rate of respiration while reducing agents decrease it. It is his belief, although it is not yet firmly established, that only acids of the fatty series have this action.

These are the facts, then, that point to the chemical basis of a nervous activity. If the chemical reactions are of the autocatalytic type, the time relations of such mental phenomena as memory and voluntary movement should correspond, *i. e.*, should be symmetrical. The author brings forward evidence to show that such is the case, but it is not easy to follow his involved mathematical calculations. He shows that the constant relation observed by Ebbinghaus to exist between the time necessary to learn a series of nonsense syllables and the number of times they had been repeated 24 hours before can be plotted on a curve having the symmetry and time relations of auto-catalytic reactions. Again the law of Weber-Fechner to the effect that perceptible changes in sensation bear a constant relation to the intensity of stimulus is also found to be in accord with the auto-catalytic view. The author himself made a study of the process of learning nonsense syllables, and found that the number memorized and the time spent in

learning them corresponded with the result expected from this theory. Finally the same may be said of the results of testing the time relations of a simple neuro-muscular act, viz., drawing a straight line.

This last series of experiments brought out some very interesting facts. The apparatus consisted of a smooth surface composed of alternate strips of wood and metal and of a pencil with a metal tip and having electrical connections so arranged that its position at each moment was recorded on a drum. It was found that the length of the lines drawn by different subjects was remarkably constant, when they were instructed merely to draw freely. The rapidity with which the lines were drawn varied widely. The time relations were of the auto-catalytic type, the speed progressively increasing during the first half and thereafter decreasing. When the subjects attempted to draw lines of an indicated length or to stop at a given signal, the length of the lines varied greatly. Evidently it was not possible for the subject to stop when he wanted to. The length of the line apparently was determined by something before it was begun, and no effort on the part of the subject could later alter it. The "something" regulating the length of the line is thought to be a definite mass of brain tissue somehow set aside for the purpose. This tissue represents the reagents of a chemical reaction, and once the reaction begins, it can not be stopped until all the reagents are exhausted. Only the initial part of the nervous activity—that corresponding to the setting aside of material, is under the control of the will. Finally it was found that the simultaneous performance of mental work decreased the velocity of the action. The reason for this was not apparent.

It is now clear how the author supports his auto-catalytic conception. In an auto-catalytic reaction there is formed as a product a substance that quickens the reaction. The acceleration is possible only within certain limits, however, for when the reagents are reduced to a certain proportion, the rate of reaction is decreased by their smaller concentration. In the case of the nervous system at least, he believes the auto-catalytic substance to belong to the fatty acid group, and since it is the "trace," which persists for some time, it must be sparingly diffusible.

Rather startling applications of these conclusions are made to the facts of hypnosis, multiple personality, sleep, etc. The depth, or permanency and importance, of "traces" is determined partly by the character of the precedent mental activity and partly by the frequency of its occurrence. Habits and instincts represent deep "traces." If "traces" are not used they tend to fade. When shallow "traces" cross deeper ones, there is a tendency for impulses in the former to be

deflected into the latter. Thus a very deep "trace" might separate almost completely one mental field from another. Should a field so separated be large enough, it might assume automatic activity and thus constitute a secondary personality. If it should get too small for this, it would be represented in consciousness as a memory gap, such as is found in hysteria.

In the production of hypnosis the important thing seems to be to so deepen a few "traces" that practically all conscious impulses will follow them. In most procedures this is brought about by producing fatigue which serves to block all shallower channels and by the concentration of attention. In Charcot's method, however, where a bright light or a loud noise is used to induce hypnosis, the channels are deepened by the character of the impulses. Light anesthesia is a useful adjuvant because it depresses all nervous activity and hence leaves only the deeper channels open to impulses.

Sleep is brought about by a mechanism somewhat like that of hypnosis. Fatigue cuts out all but a few sensory pathways which in turn become fatigued through overwork and blocked, thus cutting out all sensory stimuli. Later as the excess of auto-catalyst drains off, the sensory threshold may become lower for a short time but as more of the auto-catalyst diffuses away, it rises again. Finally the threshold falls when the reagents recuperate and when it reaches a level low enough, the individual awakens.

The author's criticism of the theory of the discontinuity of neurones seems a bit hasty in view of the facts of secondary degeneration and of some of the results of Sherrington.

The suggestion of Dr. Robertson that the auto-catalyst of the nervous system may be a member of the fatty acid series gains in significance, if some of the properties of fatty acids are kept in mind. Mathews<sup>2</sup> states that the changes in linseed oil in paints have a curious resemblance to protoplasmic respiration, memory and growth. The oil oxidizes spontaneously in the air and especially in the light and decomposes, forming a hard resinous mass of undetermined composition. In oxidizing it actually respires in that it takes up oxygen and gives off carbon dioxide. It also may be said to grow for the decomposition products are more complex than linolenic acid itself. In short the oil undergoes metabolism. The so-called dryers of paints (copper, manganese dioxide, turpentine, etc.) act like the catalytic agents in cell metabolism because they accelerate the oxidation and decomposition of the oil.

<sup>2</sup>Mathews, *Physiological chemistry*, New York, 1915.



Further it may be said that linseed oil has memory. It can be taught to undergo oxidation and remembers its lesson. In it the oxidation process, like all auto-catalytic reactions, begins slowly and gradually increases in rate. If after oxidation has begun, it is interrupted by being placed in the dark, when again placed in the light it begins sooner and proceeds at a more rapid rate than when first exposed. In other words the oil remembers the lesson learned in the first exposure; but if kept in the dark too long, it forgets. After 24 hours in the dark, oxidation is as slow in beginning and proceeds no more quickly than in the beginning.

It may be that memory is possible because there are substances like linolenic acid in the nerve cells. In cephalin are found very unsaturated fatty acids akin to linolenic acid. In the nervous system, however, the catalytic agents must be much more stable than that in linseed oil because memory persists for a long time.

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PRINCIPLES OF MENTAL HYGIENE. By William A. White, M. D. With an Introduction by Smith Ely Jelliffe, M. D., Ph. D. New York: The Macmillan Company, 1917, pp. XIV plus 317, with index. Price \$2.00.

This new book by White fills a definite need. It easily takes its place as a valuable book for orienting the average physician and layman toward the problems confronting us in that department of mental hygiene which we may refer to as social mental hygiene, in contradistinction to individual mental hygiene. White's book is not to be looked upon as presenting anything like a definite, constructive program for the social mental hygiene movement, but I venture to say that it will give valuable viewpoints even to many who are already engaged in this fight. For the most part White devotes his efforts toward a survey of the general situation which one meets with in the social mental hygiene movement and toward the building up of rational, broad viewpoints which should dominate the workers in this field.

Following his introduction he discusses "Underlying Concepts." In this chapter he considers adaptation and integration and other psychological considerations. He divides the types of human adaptation into physical, physico-chemical, sensorimotor, psychological, and social, which act by virtue of the lever, hormone, reflex, idea and social custom respectively.

In the next chapter on "Mental Mechanisms" White lays stress on and repeatedly refers to "the instinct for the familiar and the safety motive."

Chapter IV develops and discusses in an extremely interesting and enlightened manner the concept of the term "insane." White shows the inadequacy of this term and its limitations, and presents our most modern views and with suggestions for improvement in dealing with this class of socially inadequate persons. His chapter on "The Criminal" is perhaps the best in the book. He exposes some of the absurdities of our present legal attitude toward the criminal, and brings home to us forcibly that the criminal and not the crime should be the object of study. The hate motive as it enters into the situation is elaborated upon here and in other sections of the book. The vengeance of society upon the criminal as a scapegoat is very nicely developed. This, it seems to me, is a novel and important concept. He gives the modern psychopathological trend in our estimation of the criminal and offers some valuable suggestions for the correction of criminal procedure and the treatment of criminals. Juvenile delinquency does not come in for much consideration in this chapter.

Again under the heading "The Feeble-minded" there follows general discussion with suggestions.

In Chapter VII on "Miscellaneous Groups" White discusses in running fashion the pauper, the prostitute, the inebriate, the epileptic, the homosexual, the vagrant, and the homeless unemployed, while in the following chapter which is headed "Miscellaneous Problems" he makes some remarks on such varying topics as patent medicine "cures," fatigue, divorce, the woman movement, free speech, illegitimacy, social hygiene, dangerous occupations, vocational psychology, fads, wealth, idleness, old age and death.

In the chapter on "The Neuroses-Psychoanalysis" with its discussion of character anomalies we have the first inclusion in a definite fashion of what may be called individual mental hygiene.

His final chapter on "Summary" terminates with the following sentence which expresses the object of White's efforts in this book:

"To see man as a social animal and his failures as forms of social inadequacy; to approach these problems free from prejudice and with a full appreciation that in each instance the failure has back of it causes adequate to explain it; then to attempt to bring to bear upon the problem those forces which are best calculated to bring about results which are constructively of the highest value to both the individual and society; and then to be able to apply the principles worked out in dealing with the individual cases to the larger, more general issues—these are the problems of Mental Hygiene."

White lives up to his reputation and hence our expectations in this, his latest production. He writes freely, with great lucidity,

entertainingly, informingly, and in lively fashion. One who begins to read the work will not lay it aside until he has finished it—if White catches the other fellow in the spirit in which the reviewer was at the time he took the work in hand.

The volume can be recommended for study by all who would gain a good grasp of the fundamental problems of social mental hygiene. It will give such a reader worth while attitudes toward the various classes of socially inadequate persons, if he has not held them before.

The author does not discuss social inadequacy due to organic diseases, and the problems of individual mental hygiene were not, I believe, originally intended to be included within the purview of his discussion.

The book, therefore, should, perhaps, have been labelled: "Principles of Social Mental Hygiene."

It should have a wide reading.

MEYER SOLOMON.

THE FUNDAMENTALS OF PSYCHOLOGY. By W. B. Pillsbury. New York: The Macmillan Company, 1916. Pp. 562.

This textbook is intended for college students who are to devote a whole year to an introductory course in psychology, and it is planned therefore on a larger scale than the author's shorter work "The Essentials of Psychology." Otherwise it has many points of similarity with the earlier work. A notable extension and enrichment by many good illustrations occur in the second and third chapters, which deal with the nervous system and cover more than eighty pages. The reviewer, however, fails to discover any justification for this elaborate treatment of a foreign subject-matter, in as much as the rest of the text is just as intelligible to the average student who has not mastered this part, the author finding little occasion to refer back to the principles discussed in these two chapters.

The facts of visual sensations are treated in the fourth chapter, while those of visual perception of space and movement are relegated to the eighth and ninth chapters, an orthodox division of subject-matter which has little else in its favor but tradition. The other sensations are dealt with in the fifth chapter, which is followed by a brief discussion in the sixth chapter of the images and their laws of association. Instead of following this topic up with a discussion of memory, imagination, and reasoning, the logical train of thought is again interrupted, a chapter on attention and two chapters on perception preceding the resumption of the discussion of memory and reasoning. The last four chapters represent perhaps the most system-



atic part of the whole work, dealing successively with instinct, feeling and affection, emotion and temperament, will and self. Here, if anywhere, the reader will begin to realize that psychology does attempt to study mental life as a system of interrelated mental phenomena functioning and behaving toward each other according to certain inherent laws of unified activity. In this lack of interrelationship between the different topics treated the present volume is certainly not as successful as the author's earlier work.

There are several minor details of inaccuracy in statement, one of which at least (p. 241, concerning the distribution of clearness) is a recurrence from the "Essentials." The matter of references seems to be dealt with in a somewhat arbitrary manner; in some places several titles are mentioned in connection with minor details, while in other places more important topics are not supported by any references to the literature. The author has tried to maintain a neutral attitude where the subject-matter is still in the controversial stage, and has succeeded in it fairly well. While the text is not suited for individual self-instruction, it promises to be a successful aid in the class-room in the hands of a skilful instructor.

L. R. GEISSLER.

*Clark University, Worcester, Mass.*

AN INTRODUCTION TO THE PHYSIOLOGY AND PSYCHOLOGY OF SEX  
By S. Herbert, M. D., M. R. C. S. (England), L. R. C. P. (London).  
London: A. & C. Black, Ltd., 1917. (The Macmillan Company, America). Pp. xii, 126. Illustrations, 49, 20x14 c. m. \$1.25, 3/6 net.

RATIONAL SEX ETHICS. A Physiological and Psychological Study of the Sex Lives of Normal Men and Women, with Suggestions for a Rational Sex Hygiene. By W. F. Robie, A. B., M. D., Superintendent Pine Terrace, Baldwinville, Mass. Boston: Richard G. Badger, 1917. Pp. 356, 20x14 c. m. \$3.50 net.

THE SEX WORSHIP AND SYMBOLISM OF PRIMITIVE RACES. An Interpretation by Sanger Brown II, M. D., Assistant Physician, Bloomingdale Hospital. With an Introduction by James H. Leuba. Boston: Richard G. Badger, 1917. Pp. 145. 20x14 c. m. \$3.00 net.

These three books may properly be presented together to the notice of psychopathologists and psychologists and therethrough to men and women who need their information and practical wisdom. There is nothing about any of them that demands much space.

Doctor Herbert's volume deals clearly with the biology of sex, the physiology of sex, the physiology of reproduction, the psychology

of sex, aberrations of sex, and the sexual norm (each having a chapter), a conclusion, a small bibliography, and an index. It is a useful book to very many, and is suitable for the instruction of adolescents in reproductive affairs.

"The book is intended to fill a serious gap in the literature dealing with sex. It aims at giving the important facts about sex, mating, and reproduction, from the physiological and psychological point of view. It gathers together for the general reader a vast array of facts which have hitherto only been accessible to the student specializing in the subject."

Of the many such treatises, it appears to be at least as good as any other. It is honored by its dedication to Havelock Ellis, the world's leading authority on the psychological aspects of this great difference of sex dividing life.

"Rational Sex Ethics," even at the price of \$3.50, would be of inestimable value towards the happiness of multitudes of women and of men who do not know how to conduct their common marital life. Even at the price it is cheaper than the divorce that might be bought in its place, for the advice in the book leads certainly to the cessation of much unhappiness. "Time was when writers on sex subjects strove to prescribe correct sex living from no other authority than their own imaginations. Most present-day books on sex are a record of facts obtained from those whose sex lives have been abnormal. The fallacy of the former teaching has long been evident, the incompleteness of the other is fast becoming realized.

"The present work aims to utilize any facts of value heretofore obtained and to supplement these with the knowledge obtained from the complete sex histories of *several hundred normal, educated, successful, moral, and altruistic men and women.*"

The book is advertised as "for sale only to the members of the medical and legal professions," which is good advertising. Just now-a-days when folks in this world of ours are none too happy, and when too, birth-rates are low and lowering, the sound advice of this book is of especial use—and will be gratefully appreciated by such as care to pay the price. Doctor Robie has done his part well.

"The Sex Worship and Symbolism of Primitive Races" is a small work of large type and thick paper—not over nineteen thousand words. The advertisement not inaptly gives their drift:

"This simple presentation of a fundamental motive should appeal to everyone who is at all interested in mental evolution. The historical

portion of the book gives a description of sex worship which had its origin in the mind of primitive man, but which continued its influence, —unrecognized for the most part,—through the past ages down to the present day.

“A parallel is drawn between the history of this motive in the collective mind of the race and the influence of the sex motive in the life of the normal individual.”

GEORGE V. N. DEARBORN.

*Cambridge*



## WAR BULLETIN

### AN IMPERATIVE APPEAL FOR MEDICAL OFFICERS

An urgent and imperative appeal has just been issued by the Surgeon General of the United States Army, for doctors for the Medical Reserve Corps.

There are today, 15,174 officers of the Medical Reserve Corps on active duty and the Medical Department has reached the limit of medical officers at the present time available for assignment. With these facts before the medical profession of this country, we believe that every doctor who is physically qualified for service between the age of 21 and 55 years, will come forward now and apply for a commission in the Medical Reserve Corps.

The Surgeon General says: "So far the United States has been involved only in the preparatory phase of this war. We are now about to enter upon the active or fighting phase, which will make enormous demands upon the resources of the country." The conservation of these resources, especially that of man-power, depends entirely upon an adequate medical service.

Drafts of men will continually follow drafts, each of which will require its proportionate number of medical officers and there are at this time on the available list of the Medical Reserve Corps, an insufficient number to meet the demands of these drafts.

The real necessity for the complete mobilization of the entire profession is imperative. It is not a question of a few hundred men volunteering for service, but of the mobilization of the profession for the conservation of the resources of this country.

**STAND BY OUR BOYS, YOUR BOYS, THEIR BOYS.** Remember the gallant *French in '76*. The *British who stood by Dewey in 1898*. The *Garibaldis who were always for LIBERTY*.

The rapid expansion of the Army calls for a largely expanded Medical Reserve Corps. The Surgeon General has issued a most earnest appeal for doctors. The Department has reached the limit of medical officers available for assignment.

# THE JOURNAL OF ABNORMAL PSYCHOLOGY

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## ORIGINAL ARTICLES

### THE PRACTICAL MEASUREMENT OF PSYCHOPATHIC BEHAVIOR<sup>1</sup>

H. I. GOSLINE,  
CAPTAIN, M. R. C., U. S. ARMY

THE practical measurement of behavior has never been seriously attempted on a large scale in the human being. Even in the case of child psychology or of animal study, it is doubtful whether attempts made can be given more serious consideration than any other mere record of events, however well such observation may have been controlled by the conditions of the experiment. There has been a vast amount of study and record of behavior, and there is a vast amount of routine work on the behavior of the psychopathic, which can be used practically even in its crude present state. And later we may hope to perfect the crude condition of our material by persistent efforts in the right direction.

The material gained from the routine ward reports of physicians and nurses in the hospitals for the mentally incapacitated, forms a treasure of great potential value, if we have a unit of measure by which it can be integrated. I do not mean to imply that such observations can ever compare in scientific fineness with the material gained by the well controlled experiment but I do claim that this crude matter can be compared and rendered of practical value and that even the experimentally controlled material can be rendered more tangible by the application of a unit of measure which is at hand.

<sup>1</sup>Presented at the Meeting of the American Psychopathological Association held at Atlantic City, N. J., May 11, 1918.

There are two sorts of unit of measure: those which measure material things and those which "measure time." The words "measure time" are purposely put in quotation marks because they contain a riddle which has never been satisfactorily solved. A quotation will serve to show the cloudy confusion which exists with regard to the idea even in the minds of the well informed, in 1909. The quotation is as follows: "So the ingenuity of man goes on measuring this earthly element of time. Laplace said that 'Time is to us the impression left on the memory by a series of events,' and that motion, and motion only, can be used in measuring it. Thus it is motion, whether of the shadow on the grass, the dropping of water or the continuous oscillations of a swinging body, which is the necessary and unvarying element in all the measurements of time."<sup>2</sup>

It is apparent to everyone that two concepts are confused in the mind of the writer of this quotation: the concept as to the nature of time and the concept as to how time is measured. The concept as to the method by which time is measured is clear but the real significance of the measurement, the implications of the measurement, are lost sight of.

The gist of the quotation is really centred in Laplace's concept of the nature of time, especially the "series of events" part of it. He took the "impression on the memory" to be of prime significance but later psychological research has made some improvement on this conception. According to introspective psychology<sup>3</sup> time is filled with a variety of sensations, the source of which is our bodily reactions. We are able to perceive the lapse of time by a special combination of sensations in which increase and decrease of tension play a role. Our perception depends on an incoming current and upon the discharge of the centrifugal system. The discharge of the centrifugal system influences the sensory process itself.

But here introspective psychology stops and we must use other tools if we would proceed. It has succeeded in more satisfactorily locating the seat of our time sense in the interplay between the primary sensory process and the kinaesthetic sensations aroused by the reaction process, but one essential factor remains in the introspective solution as in the solution of La-

<sup>2</sup>Science: History of the Universe—Vol. VIII, Mathematics—Section on Mathematical Applications by Dr. Franz Bollinger—Current Literature Publishing Co., New York, 1909.

<sup>3</sup>Hugo Münsterberg—Psychology, General and Applied, p. 156. D. Appleton & Co., New York, 1914.



place; it is the "series of events" of Laplace, the "incoming current" of the introspective psychology.

The combined ideas of the central location of the time sense and of the "series of events" furnishes us the essentials of a broader concept of what time really is and this concept is better founded than ever before. We can now discount our central process and it becomes clear once and for all that it is the "series of events" which is prime. It is the motion in the world outside which is prime. And motion is nothing more nor less than a change in relative position in space. Time then becomes for the thinker only a measure of change in space.

It now becomes self-evident, also, why "motion and motion only, can be used in 'measuring time.'" The measurement of time is merely setting up a mechanical change in relative position in space by comparison with which all other changes in relative position in space can be measured.

The truth of this proposition is demonstrated nowhere better than in practical experience. A crude illustration is the placing of a crime by reference to a certain time. The effort is made to crystallize a certain setting, a certain complex of relative positions in space, which must have occurred for the crime to have been committed. The alibi is gained by proving one element in the complex of relative positions in space to be otherwise than claimed by the prosecution. And this again is done by reference to the time standard. And so, by reference to our time pieces, all the positions in the world of experience might be located at the moment the crime was committed.

An example of finer measurement is the study of the physiological process with its measurements in 1-100ths of seconds, or of the psychological process with its 1-1000ths of seconds. But the findings are the same here as they were in the crude work of the detective; there is no fundamental difference but only a quantitative difference. The physiological and the psychological experiment seeks in essence to locate the relative position in space of the elements under investigation, with reference to the conditions imposed by the experiment, and the 1-100th of a second or the 1-1000th of a second is merely the mechanical change in the relative position in space which must act as a standard of comparison.

So, from the crudest to the finest examples, time remains as the unit of comparison for the "series of events" and thus, as one sub-class of the series of events, all function must be measured

in units of time. Many other methods of comparison have been offered, chiefly in the study of mental phenomena, but none have claimed more than a few straggling followers, and in the meantime there has grown up practically a crude but healthy mass of material based upon the day as the unit. It is this material at hand which only needs polishing and finishing to become a powerful tool in our attack upon the intricacies of the psychopathic mind.

In all State Hospitals which have become more than asylums in deed as well as in name, there are notes made periodically on the mental condition of each patient. This work is supplemented in our best Hospitals by the institution of a sort of conduct chart which is a daily record of the abnormal behavior of each patient. This chart is kept by the nurse on the ward and is turned in with the rest of the patient's records when he is discharged from the Hospital. This is a crude but practical method of recording conduct on a large scale and it is a fundamentally correct method, however crude, because it has a time element for comparison, namely the day. What needs polishing is our conception of the acts that really constitute abnormal behavior and secondly, the training which we mental internists give our nurses.

We must submit to a bit of self-discipline in order to be able to know when an act is abnormal and to a great deal more than a bit of self-discipline in order to tell what is really behavior and what in behavior contains elements of interpretation. We must know these differences so well that we can teach them to our nurses in simple language.

In determining the abnormal nature of a certain incident of behavior, one deals with durations, intensities, and discrepancies between cause and effect. In determining what is really behavior, one must keep in mind the two degrees of observation, the first degree taking cognizance only of the objective symptom and the second degree introducing an element of interpretation into the act of the patient as seen by the observer. The first degree of observation is the only one to be relied upon in making an evaluation of an act, because it takes the objective symptom without any element of interpretation.<sup>4</sup> Present conduct charts are imperfect without exception because they ignore this difference and hence they do not bring back a true report of the be-

<sup>4</sup>Harold I. Gosline—The Conduct of the Insane—*J. Abn. Psychol.*—Vol. XII, No. 4, p. 240, October, 1917.

havior of the patient and, what is of greater import, they cloud the vision of the observer, the nurse, by forcing her to interpret the acts of the patient. We can not over-emphasize the value of the nurse in this work. Her work is essential because it is practical and it will become more practical when the necessary instruction is added to the curriculum of the nurse in the mental hospital, to replace what is now taught of the groupings of mental disease. These groupings of mental disease are too complicated and too incomprehensible to the average mental nurse; they are more fitted to the work of the doctor. On the other hand, the study of behavior, if direct observation is taught, can become easy of comprehension and is a fit object for the report of the nurse.

Who in general medicine would think of attempting to teach the intricacies of the nephroses or the vagaries of the neuro-cardiac asthenia to his nurses? It is just as little good sense to try to teach mental nurses the uncertainties of the differential diagnosis between manic-depressive psychosis and dementia precox. Substitute something practical and more tangible to the humbler understanding.

And so to summarize the problem of "measuring psychopathic behavior practically," let us recapitulate—a time unit, a clear idea of what is psychopathic, a description of behavior, and a nurse with a practical training.

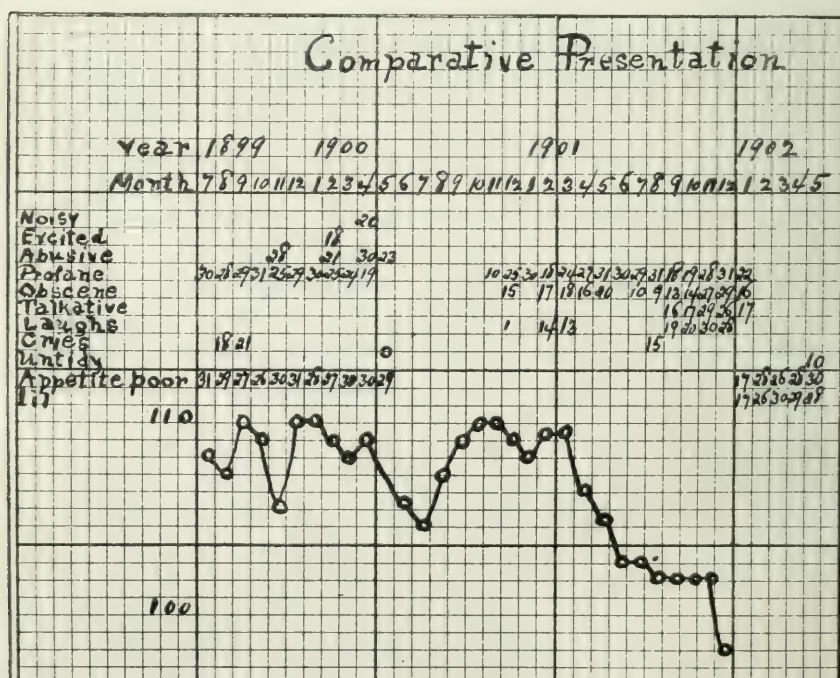
With these elements we may present the results tangibly, accurately, and practically. (See Chart) Two methods of presentation have been chosen for the time being; one may be called the "graphic presentation," the other the "comparative presentation." In the graphic method of presentation, the ordinates are the numbers of the months of the year, the abscissae are the number of days of the month during which a given act of behavior persisted. The resulting graph represents the symptom under observation. Let us take restlessness for example. On the chart (upper figure) it is apparent that the patient was restless during thirty days of the first month of the year 1898 which was the second year of her disease; and so on. It is apparent, also, that this method permits of graphic comparison with other symptoms, as noisiness, for example, (see chart), with variations in weight or, in general, with any other function, since functions must be measured in time units.

A comparative presentation may also be effected by using numbers instead of the graph. (Chart, lower part). Thus



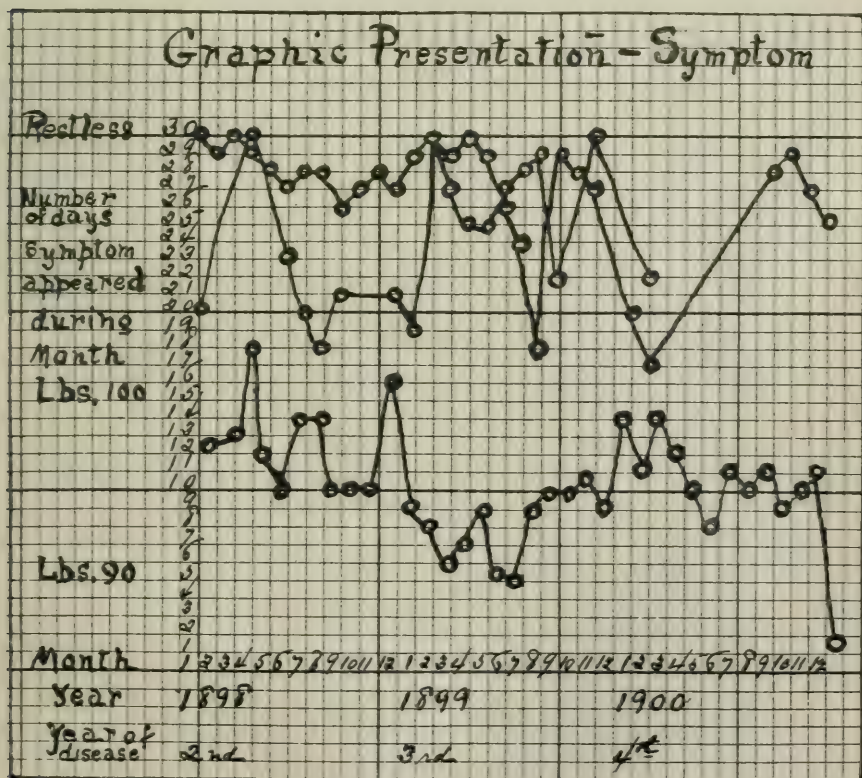
larger groups of symptoms may be compared at once or the symptoms may be compared in the various psychoses or the same symptom may be studied in a series of individuals. The method is bound only by the limitation inherent in comparisons which are referable to time as a standard.

The closer we approach the ideals outlined above, the nearer do we come to an actual measurement of neuromuscular excitement involved in the act of behavior under observation. Of course, it is not to be expected that this observation of behavior is giving us any insight into which side of the reflex arc is suffering. Such information must be obtained by the mental examination proper or by a study of the physical condition of the patient. But what we do obtain is an exact idea of the segments of the brain and cord which are discharging and, of still more value, we know something of the comparative activity of the various segments. Thus, in the lower part of the chart, it was the neuromuscular apparatus subserving the voice which was most active during the fourth month of 1900 and this took the direction of abusiveness and profanity. At another time it was the lachry-



mal apparatus plus the voice in profanity. And the entire course of this patient's behavior was exteriorized in the head segments of the cord or, perhaps, in the head area of the brain except at the end of the disease when the activity of these segments subsided and the lower segments of the cord, or the upper areas of the brain, or possibly areas in the thalamus, became active, as evidenced in the patient's untidiness. At the same time the gastro-intestinal system was upset.

In concluding, it may be emphasized again that the method is practical now and can be made more so. An example of the interpretation of the figures and how to compile the figures has been given. The method is not new; it is only an extension of what is being done now in Hospitals for the insane where scientific work is being attempted. The adoption of this method makes for clear thinking by insisting on a clear comprehension of real differences which exist between behavior in the true sense and



what is often erroneously termed behavior. Finally, it is a step in a rational plan of psychoanalysis; the sort of psychoanalysis that is trying to arrive at the seat of the patient's trouble in his own body.

Just now we must be content to leave it to future researches to reveal the total possibilities of discharge of the sensory system into the paths observed to be acting when we study behavior. But with the advent of this knowledge, we shall locate the seat of the pathological condition in the mental case from the symptoms, in the same ideal way attempted, but never quite reached, by our confreres in general medicine.



## HYPNAGOGIC HALLUCINATIONS WITH CASES ILLUSTRATING THESE SANE MANIFESTATIONS<sup>1</sup>

N. S. YAWGER, M. D., PHILADELPHIA

**I**N medical writings it is seldom that more than mention is made of sane hallucinations, though they are not of such uncommon occurrence and occasionally we are consulted as to their significance. From Bible-times down there always have been persons who beheld visions and history records many instances where men of genius have had either a single hallucinatory experience or have been subject to their occasional re-appearance.

Hypnagogic phenomena were first studied and so named by the French psychologist, Maury (1); subsequently, the matter was given consideration by Kraepelin (2), and in this country it is mentioned by White (3) but for the most part the subject has been left to psychologists.

These curious experiences are familiarly known as visions, and, though innocent in their nature, might be mistaken as heralding some grave mental disorder. In discussing the subject some writers have included phenomena of the special senses manifested upon wakening; the derivation of the word hypnagogic prohibits this, and, furthermore, while experiences preceding sleep are mostly visual, those occurring upon wakening are more likely to be associated with hearing.

By hypnagogic phenomena, hallucinations or visions, we understand those experiences, usually optical, of a few sane persons, observed during the transitional stage from wakening to slumber and in which scenes or objects of various kinds pass rapidly before the sight. While in some individuals such hallucinations are observed with the eyes closed, in others they are seen with them open.

The character of the visions vary; at times they assume architectural forms, they may be of streets or of interior decorations and in other experiences persons are represented either singly or in groups. These recurring scenes are likely to be more or less of a similar character in each individual.

<sup>1</sup>Read before the American Neurological Association at the Forty-fourth Annual Meeting, Atlantic City, May, 1 18.

*Case 1.* A female, aged 72, long a sufferer from chronic rheumatic arthritis but whose hallucinatory experiences antedates her invalidism. The visions were first manifested at 40 years, since then not oftener than once in two or three years and still less often of recent years. The sights appear only upon retiring and always with the eyes closed. They are of no particular type—Scenes from nature, different patterns of lace and sometimes human heads with distorted features. Once, this individual recalls seeing a castle with doors standing open. It appeared to her that she entered the structure and walked along a wide corridor and into a number of large vacant rooms.

*Case 11.* This is of a gentlewoman, aged 47, of unusual intelligence and in exceptional health. Her own statement follows: The visions appeared first at about 15 years and have been continuous ever since at longer or shorter intervals. Sometimes they appear for several consecutive nights and then remain away for months at a time.

So far as I can judge they are not more likely to be with me when I am overtired or disturbed in mind. I exercise no control over them as I have repeatedly endeavored to recall the sights but without success; again, when I least expect them they appear, though never until after having retired. In character they are panoramic, one scene appearing for a few seconds to be followed a moment later by a vision entirely different. I regard their development with great interest and enjoyment. At times when others have been in my rooms I have been pleased to entertain them with descriptions of these visions as they appeared one by one. Though my eyes are closed, I know I am fully awake, else how could I describe the sights accurately at the time and furthermore have the power of recalling them long after?

My experiences are almost invariably of a pleasant nature and through many years there have been but few instances when I have met with decidedly unpleasant sights. These experiences are not the projected images of things previously seen or read but seem an entirely new creation. To me a singular feature is that the visions are invariably void of life—Never a living creature nor the image of one—All is so deserted and still.

As to the subjects of these visions: They are sceneries from nature of various kinds, streets where I see rows of houses mostly of dark brown sandstone and of stately architecture, handsome rooms with beautiful furnishings and hangings, all of

gorgeous hue and wondrous design. When I distinctly see interiors, patterns of tapestries and decorations, they are usually in oriental style. Most all I see is so beautiful that I long for the power to reproduce it in reality.

Once, I vividly recall that suddenly there appeared lying upon a highly polished round-top table of about two feet in diameter and within easy reach of my hand, a jewel, of oval shape and about four inches in its greatest length. This jewel was a most beautiful, rich, shining topaz, set in a golden scroll and in the center was a jet-black pulsating star. Soon the whole scene vanished from my sight.

More frequent but less elaborate experiences are with me as I waken. These are usually associated with hearing and consist for the most part of jabbering, incoherent words or snatches from sentences. A recent instance of this kind was my distinctly catching these words, "I paid my million dollar debt to E. P. Andre." To me these words are always meaningless since I can associate them with nothing in my past life.

In the latter case cited the visions began at 15 years and in the former at 40. This, according to Steen (4), is unusual. In speaking of such manifestations he says, "These are more marked in youth and as a rule disappear when adult life is reached." He quotes DeQuincy who wrote, "I know not whether my reader is aware that many children have a power as it were of painting upon the darkness all sorts of phantoms; in some that power is simply a mechanical affection of the eye; others have a voluntary or semi-voluntary power to dismiss or summon such phantoms; or, as a child once said to me when I questioned him about this matter, 'I can tell them to go, and they go, but sometimes they come when I don't tell them to come.'"

These manifestations do not have their origin in peripheral disturbances, they have been perceived in persons blind and deaf. Individuals having such experiences may be physically healthy and entirely sane. The phenomenon is just a state of mind and probably as far removed from disease or disorder as is dreaming.

One finds among psychologists various theories accounting for hypnagogic hallucinations. In some general discussion of analogous states James says, "Whenever the associative processes are reduced and impelled by the approach of unconsciousness, as in falling sleep, or growing faint or in becoming



narcotized, we find a concomitant increase in the intensity of whatsoever partial consciousness may remain."

As to theories regarding hypnagogic phenomena—Some have considered them due to shutting off the drainage through association paths, thereby making more intense the activity of those cells that retain any activity, until finally the accumulation is so great that a sensory explosion occurs in the form of a vision.

Another theory lays stress upon the approach of drowsiness, at which time the sensations cease, consequently, we have an absence of their reductive power; in other words, the channels of comparison being shut off, there is in operation no toning down process and thus the imaginary sights are permitted to spring into existence unopposed.

1. Maury, L. F. Alfred: *Le Sommeil et les Reves*: Libraire Academeque et Cie, Libraires-Editeurs, Paris, 1861, p. 41.
2. Kraepelin, Emil: *Psychiatrie*: Johann Ambrosius Barth, Leipzig; 1. Band, p. 130, 1903.
3. White, William A.: *Outlines of Psychiatry*: Nervous and Mental Disease Publishing Company, Washington; 1918, p. 45.
4. Steen, Robert Hunter: *Hallucinations in the Sane*; *The Journal of Mental Disease*; July, 1917, p. 328.
5. James, William: *Psychology*, Henry Holt and Company, New York: Vol. II, 1890, p. 124.

# POINT SCALE EXAMINATIONS<sup>1</sup> ON THE HIGH-GRADE FEEBLE-MINDED AND THE INSANE

BY JOSEPHINE N. CURTIS, PH. D.

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**I**N February, 1916, when we began the investigation here reported,<sup>2</sup> to our knowledge no extensive use of the Yerkes-Bridges Child (pre-adolescent) Point Scale had been made with subjects at the border-line of feeble-mindedness.<sup>3</sup> We were concerned to determine as accurately as possible the intellectual level reached by individuals who had proven that they were just unable to get along by themselves in the world, and to ascertain for these cases the range of variation in intellectual ability. We wished, secondly, to obtain data for comparison with ratings already obtained on the same subjects by the use of the Goddard 1911 revision of the Binet tests,<sup>4</sup> and to ascertain the diagnostic significance, at the upper ages of the individual tests on the Point Scale. As work progressed, it became increasingly evident that the child scale was unsuitable for our purposes in some cases, since with it our highest grade subjects attained scores equal to those of normal subjects. This outcome indicated that not enough difficult tests were included in the scale to give chances for the subnormals to display their inferiority. Accordingly we gave the preliminary form of the Yerkes-Rossy Adult Point Scale<sup>5</sup> to about thirty subjects who received high scores on the child scale.

Our subjects were 100 boys and 100 girls at the Massachusetts School for the Feeble-Minded at Waverley. There are

<sup>1</sup>The directions for grading given by Yerkes, Bridges, and Hardwick, *A Point Scale for Measuring Mental Ability*, 1915, proved too meagre for our work and we have therefore made a more detailed list of typical answers and their evaluation. This list is now in use in the Psychopathic Hospital, Boston and is given in Appendix B of this paper.

<sup>2</sup>The problem of the applicability of the Point Scale to the high grade feeble-minded was suggested by Major R. M. Yerkes. To him, to Dr. W. E. Fernald and Dr. F. Mateer of Waverley and to Dr. E. E. Southard of the Psychopathic Hospital grateful acknowledgments are due for valuable suggestions and criticisms.

<sup>3</sup>The report of T. H. Haines, *Ohio Board of Administration*, Pub. 7, Dec. 1915 had not reached us. Compare also R. M. Yerkes and L. Wood, *Journ. Ed. Psych.* 7, Dec., 1916.

<sup>4</sup>H. H. Goddard, reprint (1911) from Training School, January, 1910.

<sup>5</sup>A brief account of the nature of this scale and of our results with it are given by R. M. Yerkes and C. S. Rossy, *Boston Med. and Surg. Journ.* 176, No. 16, April 19, 1917, p. 569 ff. Certain other results follow in this paper.

no spastics, Cretins, Mongolians, microcephalics or hydrocephalics in the group. Negroes are designated in the tables by parentheses. With scarcely any exceptions our group contained all of the high grade girls at the school. There are 68 whose mental ages are 9 or over.<sup>a</sup> Most of the high grade boys at the school were also examined, though some few could not well be taken from their work on the farm. Our cases, however, included 70 boys of 9 years mental age and over. For the rest, the groups are made up chiefly of boys and girls of slightly lower mental ages whom it was necessary to examine to make sure they were really below 9, together with a few at much lower ages for the sake of certain comparisons. The median chronological age of the boys examined was 16 — a median variation of 2; of the girls, 24 — 3. The median chronological age of the 70 high grade boys was 16 — 2; of the 68 high grade girls, 24 + 4. All of the cases had been tested at the school less than two years before by Goddard's revision of the Binet tests. The following facts make it probable that for many purposes we may make comparisons between the results of the two scales without significant errors due to lapse of time between the giving of the two sets of tests: 1) The median chronological ages of our lower grade and of our higher grade groups are identical. 2) The Binet measurements give 65 boys and 70 girls with mental age over 9 as compared with 70 and 68 by the Point Scale. 3) Many of our group are adults and therefore probably not developing.

TABLE I  
POINT SCALE AND BINET DATA UPON 200 FEEBLE-MINDED  
BOYS

CHILD POINT SCALE—MENTAL AGE

Case number	Chronological age	Child Point Scale mental age			Binet mental age	I. Q.		Point Scale mental age	Binet mental age	Adult Point Scale Score
		score	old norms	new norms		C. I.				
1	22	21	4.8	4.9	6.6	24	31	41	-1.7	
2	17	29	6.0	6.2	7.6	34	38	48	-1.4	
3	24	32	6.5	6.6	6.4	36	41	40	.2	
4	15	36	7.2	7.2	7.0	45	48	47	.2	
5	10	38	7.5	7.5	8.2	67	75	82	-1.7	

<sup>a</sup> Except when otherwise indicated, the corrected norms of Yerkes and Wood, *op. cit.*, 606, are used in all computation in this paper.



6	11.5	39	7.7	7.6	7.2	58	65	63	.4
7	15	40	7.8	7.7	8.2	49	51	48	.5
8	10	40	7.8	7.7	9.0	70	77	90	-1.3
9	20	40	7.8	7.7	8.6	45	48	54	-.9
10	17	41	8.0	7.8	7.0	48	49	44	.8
11	16	42	8.1	8.0	7.8	50	51	49	.2
12	22	42	8.1	8.1	7.8	49	51	49	.3
13	11.9	44	8.2	8.2	7.8	69	69	66	.4
14	18	44	8.2	8.2	9.0	50	51	56	-.8
15	14	44	8.2	8.2	9.4	56	58	57	-1.2
16	11.2	44	8.2	8.2	8.0	68	73	71	.2
17	29	44	8.2	8.2	9.0	50	51	56	-.8
18	17	45	8.3	8.4	9.0	52	52	56	-.6
19	10.7	45	8.3	8.4	8.0	73	78	75	-.4
20	12.1	46	8.3	8.5	9.2	66	70	76	-.7
(21)	16	46	8.3	8.5	7.0	55	53	44	1.5
22	15	47	8.4	8.6	8.4	57	57	56	.2
23	11.5	48	8.5	8.8	8.2	72	76	71	.6
24	14.2	48	8.5	8.8	8.2	61	62	58	.6
25	20	48	8.5	8.8	9.0	55	55	56	-.2
26	33	48	8.5	8.8	8.2	55	55	51	.6
27	17	48	8.5	8.8	10.0	56	55	63	-1.2
28	14.5	49	8.5	8.9	9.2	61	61	63	-.3
29	15	49	8.5	8.9	8.0	61	59	53	.9
30	12	49	8.5	8.9	9.8	70	74	82	-.9
(31)	14	50	8.6	9.0	10.0	64	64	71	-1.0
32	13.7	50	8.6	9.0	9.0	65	66	66	0
(33)	19	50	8.6	9.0	8.0	57	56	50	1.0
34	21	50	8.6	9.0	9.4	57	56	59	-.4
35	16	51	8.7	9.2	8.2	61	58	51	1.0
36	15	51	8.7	9.2	8.0	61	57	53	1.2
37	15	51	8.7	9.2	8.6	63	61	57	.6
38	14.5	51	8.7	9.2	8.0	64	63	55	1.2
39	15	51	8.7	9.2	9.6	62	61	64	-.4
40	17	51	8.7	9.2	9.4	61	57	59	-.2
41	13.7	52	8.7	9.3	8.0	63	63	58	1.3
42	17	52	8.7	9.3	9.2	60	58	58	.1
(43)	16	52	8.7	9.3	9.4	63	60	59	-.1
44	15	52	8.7	9.3	9.2	63	61	61	.1
45	14.7	52	8.7	9.3	8.0	64	63	54	1.3
46	12.5	53	8.8	9.5	9.6	74	76	77	-.1
47	16	53	8.8	9.5	8.4	63	59	53	1.1
(48)	13.5	53	8.8	9.5	9.2	70	70	68	.3
49	10.3	53	8.8	9.5	8.2	90	92	80	1.3
(50)	21	55	8.9	9.7	8.6	63	61	54	1.1
51	13	54	8.9	9.6	9.4	73	74	72	.2
52	17	55	8.9	9.7	9.8	64	61	61	-.1
53	15	55	8.9	9.7	9.2	63	65	61	.5
54	23	55	8.9	9.7	9.6	63	61	60	.1
55	31	55	8.9	9.7	8.8	63	61	55	.9

56	11.4	56	9.0	9.9	8.6	85	87	75	1.3
57	45	56	9.0	9.9	9.0	64	62	56	.9
58	23	57	9.2	10.0	10.6	65	63	66	-.6
59	16	57	9.2	10.0	10.2	68	63	64	-.2
60	17	57	9.2	10.0	9.4	66	63	59	.6
61	12	58	9.3	10.1	9.6	83	84	80	.5
62	15	58	9.3	10.1	9.2	72	67	61	.9
63	16	58	9.3	10.1	8.6	69	63	54	1.5
64	15	58	9.3	10.1	9.0	72	67	60	1.1
65	18	58	9.3	10.1	10.2	66	63	64	-.1
66	40	58	9.3	10.1	9.0	66	63	56	1.1
67	18	59	9.5	10.3	10.0	67	64	63	.3
68	14.5	59	9.5	10.3	9.0	74	71	62	1.3
69	18	60	9.7	10.4	10.2	68	65	64	.2
70	20	60	9.7	10.4	8.8	68	65	55	1.6
71	17	60	9.7	10.4	9.0	70	65	56	1.4
72	11.9	60	9.7	10.4	8.2	82	87	69	2.2
73	15	60	9.7	10.4	9.2	74	69	61	1.2
74	14	61	9.8	10.5	10.0	73	75	71	.5
(75)	12	61	9.8	10.5	10.0	87	88	83	.5
76	27	61	9.8	10.5	10.6	69	66	63	.5
77	15	61	9.8	10.5	9.8	75	70	65	.7
78	16	63	10.3	10.8	10.2	75	68	64	.6
(79)	17	63	10.3	10.8	9.2	73	68	58	1.6
80	19	64	10.7	11.0	10.6	73	69	66	.4
81	20	64	10.7	11.0	9.8	74	69	61	1.2
82	15	64	10.7	11.0	9.4	79	73	63	1.6
83	20	65	11.0	11.2	10.4	74	70	65	.8
84	23	65	11.0	11.2	9.4	74	70	59	1.8
85	18	65	11.0	11.2	10.2	74	76	64	1.0
86	16	65	11.0	11.2	10.0	77	70	63	1.2
87	15	67	11.2	11.5	9.4	83	77	63	2.1
88	16	68	11.3	11.7	11.2	81	73	63	.5
89	21	68	11.3	11.7	10.8	77	73	70	.9
90	14	70	11.4	12.1	10.6	90	86	68	1.5
91	15	70	11.4	12.1	10.2	86	81	68	1.9
92	13.5	70	11.4	12.1	9.2	92	90	68	2.9
(93)	17	72	11.6	12.5	9.4	84	78	59	3.1
(94)	18	72	11.6	12.5	10.4	82	78	65	2.1
95	17	75	11.8	13.2	10.0	87	82	63	3.2
96	14	75	11.8	13.2	11.0	96	94	79	2.2
97	16	79	13.0	14.2	10.6	94	89	66	3.6
98	17	81	14.0	14.9	10.0	94	93	63	4.9
99	16	82	15.0	15.2	10.4	98	95	65	4.8
100	18	93	15. +	18. +	12.0	106	113	75	6.0 +

## GIRLS

101	23	22	5.0	5.0	6.4	25	31	40	-1.4
102	15	25	5.4	5.5	5.8	25	37	39	-.3
103	13	27	5.7	5.9	6.6	27	38	51	-.7
104	23	27	5.7	5.9	7.2	31	37	45	-1.3
105	32	28	5.9	6.0	6.8	32	38	43	-.8
106	19	28	5.9	6.0	6.8	32	38	43	-.8
107	33	28	5.9	6.0	7.4	32	38	46	-1.4
108	29	30	6.2	6.3	7.8	34	29	49	-1.5
109	21	33	6.8	6.8	7.6	38	43	48	-.8
110	26	33	6.8	6.8	8.8	38	43	55	-2.0
111	26	34	6.8	6.9	8.4	39	43	53	-1.5
112	24	35	7.0	7.0	8.2	40	44	51	-1.2
113	24	35	7.0	7.0	8.6	40	44	54	-1.6
114	20	36	7.2	7.2	6.8	41	45	43	.4
115	49	38	7.5	7.5	9.0	43	47	56	-1.5
116	24	39	7.7	7.6	7.8	44	48	49	-.2
117	25	39	7.7	7.6	8.4	44	48	53	-.8
118	26	39	7.7	7.6	8.4	44	48	53	-.8
119	19	40	7.8	7.7	8.4	45	48	53	-.7
120	25	40	7.8	7.7	7.0	45	48	44	.7
121	27	43	8.1	8.1	7.3	49	51	45	.9
122	34	43	8.1	8.1	8.4	49	51	53	-.3
123	23	43	8.1	8.1	8.0	49	51	50	.1
124	36	45	8.3	8.4	9.6	51	53	60	-1.2
125	14	47	8.4	8.6	7.8	54	54	49	.8
126	57	47	8.4	8.6	8.6	54	54	54	0
127	20	47	8.4	8.6	9.0	54	54	56	-.4
128	25	47	8.4	8.6	8.2	54	54	51	.4
129	20	47	8.4	8.6	9.0	54	54	56	-.4
130	26	48	8.5	8.8	7.8	55	55	49	1.0
131	21	48	8.5	8.8	9.6	55	55	60	-.8
132	26	49	8.5	8.9	9.6	56	56	60	-.7
133	28	50	8.6	9.0	9.0	57	56	56	0
134	21	50	8.6	9.0	8.8	57	56	55	.2
135	18	50	8.6	9.0	9.2	57	56	58	-.2
(136)	19	52	8.7	9.3	8.2	59	58	51	1.1
137	27	54	8.9	9.6	10.2	61	60	64	-.6
138	16	55	8.9	9.7	10.4	65	61	65	-.7
139	33	55	8.9	9.7	10.2	63	61	64	-.5
140	21	57	9.2	10.0	10.6	65	63	66	-.6
141	24	57	9.2	10.0	8.6	65	63	54	1.4
142	26	58	9.3	10.1	10.2	66	63	64	-.1
143	26	58	9.3	10.1	10.0	66	63	63	.1
144	19	58	9.3	10.1	9.6	66	63	60	.5
145	30	58	9.3	10.1	10.0	66	63	63	.1
146	27	59	9.5	10.3	9.8	67	64	61	.5
147	20	59	9.5	10.3	9.8	67	64	61	.5
148	25	60	9.7	10.4	9.0	68	65	56	1.4
149	35	60	9.7	10.4	9.2	68	65	68	1.2



150	29	60	9.7	10.4	9.0	68	65	56	1.4	
151	17	61	9.8	10.5	10.4	76	66	65	.1	
152	22	61	9.8	10.5	10.0	69	66	63	.5	
153	30	62	10.0	10.7	9.8	70	67	61	.9	20
154	13.2	62	10.0	10.7	10.4	83	81	79	.3	
155	32	62	10.0	10.7	9.6	70	67	60	1.1	
156	26	63	10.3	10.8	9.0	72	68	56	1.8	
157	25	63	10.3	10.8	9.2	72	68	58	1.6	
158	24	65	11.0	11.2	10.2	74	70	64	1.0	29
159	31	66	11.1	11.4	9.8	75	71	61	1.6	
160	24	66	11.1	11.4	9.4	75	71	59	2.0	
161	21	67	11.2	11.5	10.2	76	72	64	1.3	
162	32	67	11.2	11.5	10.4	76	72	65	1.1	
163	28	67	11.2	11.5	10.2	76	72	64	1.3	29
164	31	68	11.3	11.7	10.6	77	73	66	1.1	
165	39	68	11.3	11.7	8.6	77	73	54	3.1	
166	37	68	11.3	11.7	10.0	77	73	63	1.7	18
167	23	68	11.3	11.7	11.0	77	73	69	.7	
168	16	69	11.3	11.9	10.2	82	74	64	1.7	
169	25	69	11.3	11.9	10.0	78	74	63	1.9	32
170	24	70	11.4	12.1	11.2	80	76	70	1.1	32
171	27	70	11.4	12.1	10.8	80	76	68	1.3	
172	19	71	11.5	12.3	11.0	81	77	69	1.3	26
173	22	72	11.6	12.5	11.0	82	78	69	1.5	
174	31	72	11.6	12.5	10.6	82	78	66	1.9	26
175	20	72	11.6	12.5	10.6	82	78	66	1.9	33
176	23	72	11.6	12.5	10.6	82	78	66	1.9	40
177	21	73	11.7	12.8	10.2	83	80	64	2.6	28
178	29	73	11.7	12.8	11.0	83	80	69	1.7	36
179	26	73	11.7	12.8	10.6	83	80	66	2.2	41
180	24	73	11.7	12.8	10.2	83	80	64	2.6	40
181	17	74	11.8	13.0	10.6	85	81	66	2.4	41
182	15.9	77	12.0	13.7	9.2	93	86	58	4.5	32
183	21	77	12.0	13.7	9.2	88	86	58	4.5	42
184	22	79	13.0	14.2	11.2	90	89	70	3.0	42
185	25	79	13.0	14.2	11.2	90	89	70	3.0	40
186	27	79	13.0	14.2	10.6	90	89	66	3.6	27
187	25	80	13.5	14.5	11.2	91	90	70	3.3	54
188	27	80	13.5	14.5	11.6	91	90	73	2.9	32
189	32	82	15.0	15.2	11.0	93	95	69	4.2	56
190	20	83	15.5	15.5	10.6	94	97	66	4.9	52
191	17	83	15.5	15.5	11.2	98	97	70	4.3	47
192	17	83	15.5	15.5	10.4	98	97	65	5.1	49
193	26	84	16.0	16.0	11.4	97	100	71	4.6	41
194	16.8	84	16.0	16.0	11.0	98	100	69	5.0	59
(195)	20	85	16.5	16.3	10.4	97	102	65	6.1	47
196	33	85	16.5	16.3	10.8	97	102	68	5.5	
197	21	86	17.0	16.8	11.6	98	105	72	5.2	47
198	27	89	18.+	18.+	11.2	101	113	70	6.8+	44
199	22	89	18.+	18.+	11.4	101	113	71	6.6+	45
200	19	92	18.+	18.+	11.4	105	113	71	6.6+	54

Table I presents our data. In the succeeding columns are given: 1) case number; 2) chronological age; 3) the Child Point Scale score (total credits); 4) the mental age corresponding to the score, according to original norms;<sup>7</sup> 5) the mental age using corrected norms; 6) the Binet mental age; 7) the coefficient of intelligence (attained Point Scale score divided by score expected at chronological age, adults 88 points, 18 years); 8) the Point Scale Intelligence quotient (Point Scale mental age divided by chronological age, adults given age 16); 9) the Binet I Q (adult, 16 years); 10) the difference between the Point Scale age and the Binet age; 11) the Adult Point Scale score.

That the distribution of cases by mental age is noticeably different, according to whether old or new norms are used is evident from the summary given by Table II where with change from old to new norms the mode of the total distribution moves two years upward, 8.0-8.9 to 10.0-10.9.

TABLE II  
DISTRIBUTION OF CASES AT VARIOUS MENTAL AGES

	4.0 - 4.9	5.0 - 5.9	6.0 - 6.9	7.0 - 7.9	8.0 - 8.9	9.0 - 9.9	10.0 - 10.9	11.0 - 11.9
Point Scale:								
Old norms	1	7	6	15	65	35	10	38
New norms	1	4	9	16	32	34	40	22
Binet	0	1	7	18	39	61	54	19
	12.0 - 12.9	13.0 - 13.9	14.0 - 14.9	15.0 - 15.9	16.0 - 16.9	17.0 - 17.9	18.0 +	
				(or 15 +)				
Point Scale:								
Old norms	1	2	6	1	14			
New norms		16	5	7	5	5	0	4
Binet		1						

There is no selective factor known to the institution authorities which would explain the relatively small number of cases at 10.0-10.9 (old norms). The distribution of the cases by Binet ages shows no evidence of a gap at or near this age. The gap appears, therefore, to be due to the incorrectness of the older norms, and our finding that this gap disappears when new

<sup>7</sup>See R. M. Yerkes, J. W. Bridges, and R. S. Hardwick, *A Point Scale for Measuring Mental Ability*, p.

norms are used may be considered a further justification for the use of the new norms at this and the adjacent ages.

Forty-two cases with mental ages above 12 (11 boys and 31 girls, 16% and 46%, respectively, of the high grade groups) is a surprisingly large number. In the case of the girls particularly, however, it should be noted that probably about half of those over 9 mentally would not have found themselves in the institution had it not been for delinquencies. Seven of the 31 girls have definite histories of delinquency. One also is probably psychotic. Another, a negress who has since died, had the appearance of a white girl. In consequence she was forced when outside the institution to compete with white requirements. She would not under more natural requirements have been called feeble-minded. Of the 22 other girls, 2 have been discharged, and 5 are out on trial. So far as known they are doing well under supervision. The remaining 15 are still at the school. Of the 11 boys, 3 have been discharged. One of these is now diagnosed as not feeble-minded. Two others, one of whom is diagnosed probably psychotic, have run away. Of the rest, one is temporarily released, one has just been allowed to leave on trial, one has been on trial but has been returned unsuccessful, and 3 are still at the institution. Thirteen of these cases, then, either can be diagnosed as not feeble-minded, or are proving that they can get along outside the institution if under supervision. Of the remaining 29 cases, 7 are delinquent, and very likely emotionally rather than intellectually defective, leaving the cases unquestioned, 22. The probability is that with increasing years a few more will be discharged or let out on trial. We may then say that there are about 20 cases in our group who are considered feeble-minded, and who give a mental age of over 12. Since our work was done, many more children who do not belong to the delinquent group and who have mental ages over 12 have been admitted to the school. It is therefore dangerous to say that all persons over 12 years mental age are thereby indicated as not truly feeble-minded. It is also dangerous to say that no person in a School for the Feeble-minded will ever be able to get along by himself in the world.

#### COMPARISON OF THE C I AND THE I Q

The diagnostic value of the coefficient of intelligence and of the intelligence quotient, as compared with that of the mental age, have of late been emphasized. The coefficient of intelli-



gence (C I) of .70 has been placed tentatively as the "upper limit of inadequacy or inferiority" below which individuals are "socially burdensome, ineffective and usually a menace to social welfare," and .70 to .80 intelligence quotient (I Q) is regarded as characterizing "borderline deficiency, often classifiable as feeble-mindedness" and below .70 I Q as "definite feeble-mindedness."<sup>8</sup>

We give in Table III the distribution of the C I's and I Q's for our groups.

TABLE III

DISTRIBUTION OF CASES BY C I AND BY I Q

C I (adult 88 points)

I Q (adult 16 years)

	Boys	Girls	Total	Boys	Girls	Total
21-30	1	3	4	0	0	0
31-40	3	10	13	2	8	10
41-50	8	10	18	4	12	16
51-60	15	13	28	21	17	38
61-70	31	17	48	43	20	68
71-80	24	16	40	16	22	38
81-90	12	16	28	9	9	18
91-100	5	12	17	4	6	10
101-	1	3	4	1	6	7

From Table III it is evident that the use of the C I gives a greater number of high grades than does the I Q (89 vs. 73 cases above .70). Indeed, according to the C I rating, 21 cases are classifiable as normal or supernormal,<sup>9</sup> 68 as subnormal, and only 111 cases have the low intelligence of the feeble-minded. If we use the I Q, we find 127 with the intelligence of the feeble-minded, and 38 more who are probably feeble-minded, 18 who are dull and probably not feeble-minded, and 17 who have normal intelligence. We have suggested above (p. 00) that some of the children at the school (perhaps 22) may be classed above the feeble-minded grade. This leaves at least 178 of our group who are considered by the authorities at the school as definitely feeble-minded.

<sup>8</sup>For use of the C I see R. M. Yerkes and L. M. Wood, *op. cit.*, pp. 602, 606. For use of the I Q, see L. M. Terman, *Measurement of Intelligence*, 1916, pp. 79, 87ff.

<sup>9</sup>See Yerkes and Wood, *op. cit.*, p. 601.

The I Q expresses this fact more truly than does the C I. Moreover, if we should accept a .70 C I as the limit of feeble-mindedness this would imply a score of 62 and a mental age of 10.0 as critical in adults. This limit is evidently, therefore, far too low.

From a theoretical point of view there seem to be a number of arguments in favor of the I Q. In the first place there are more chances of error in the use of the C I than there are in that of the I Q. Dr. Yerkes has pointed out<sup>10</sup> that "The reliability of the quotient depends upon several variable factors, important among which are the accuracy of the measurement of intelligence, and the trustworthiness of chronological age." This must also hold true for the C I. The question of chronological age makes one error in the I Q, that is, it may change the divisor; but it makes two errors in the C I: first, the given age may be wrong; second, the number of points corresponding to that age may be wrong.

The fact that the gaining of a point at the higher ages means very little so far as the C I is concerned ( $\frac{87}{8}$  and  $\frac{88}{8}$  at 18 show the slight difference .01 while  $\frac{21}{4}$  and  $\frac{22}{4}$  at 5 show the much larger difference .05) together with greater probability of more points difference at 5 implies that individuals are much more alike in intelligence at 18 than the same individuals were at 5. This difference has been noticed by Yerkes and Wood who state<sup>11</sup> that this outcome is justified by application of the scale. "The results make it appear that extraordinary intellectual ability is fairly common up to 8 years, and then becomes very uncommon." It would seem that any results which make any such astonishing statement seem true, must be questionable. The authors, to be sure, state that "Evidently . . . the reliability of our coefficient and its value for purposes of comparison are conditioned by characteristics of range." Now if the C I is to mean different things at different ages, then it has the fault that is found with the statement of difference between chronological and mental ages, namely that a retardation of 2 years at chronological age 5 is more serious than a retardation of 2 years at chronological age 12. Yerkes and Wood also note that they would not have predicted Terman's steadiness of I Q. The reason for this statement is not clear. If intelligence is ability to get along, to compete on equal terms with others of the given chronological age and same general social condition,

<sup>10</sup>Yerkes and Wood, *op. cit.*, p. 594.

<sup>11</sup>*Op. cit.*, p. 598.

then intelligence measured in I Q's and C I's should be a relative matter of distribution within the age groups. We should expect a certain proportion of the population to possess it, and should expect this proportion to be approximately constant at all ages.

From a practical point of view the I Q has the advantage of being the apparent limit toward which the C I approaches as the Point Scale norms are revised. For the years 7 to 13 (for which ages Dr. Yerkes says the Point Scale is most reliable) we have the average number of points awarded to each to be 6.9 2.2 by the old norms and 6.4 1.2 by the new. This means that correction of the norms for the Point Scale is making more equal distribution of points per year. Now, if the distribution of points is approaching an arithmetical progression, our table of norms is approaching two arithmetical progressions (one the years mental age, and the other the number of points corresponding to each mental age) differing in the size step but dependent upon one another. Let us then consider these two progressions. The I Q is calculated from the one (the mental ages); the C I from the other (the scores). Now if one progression varies with the other, then the I Q and the C I will also vary together and therefore have the same meaning. At present, of course, the column of scores does not vary exactly with the mental ages, but, as we have said, revisions in the norms are turning it strongly in this direction. So that it would seem simpler, as well as more correct in theory, to accept the I Q as the limit toward which the C I is approaching and to use the I Q now in place of the C I.

#### COMPARISON OF THE RATINGS BY THE POINT SCALE AND BINET EXAMINATIONS

A detailed comparison of the mental ages given by the two scales would be out of place here, because since we began this work more careful comparisons have been made by other investigators. From the data which we have, the average Point Scale mental age for years 5.5 to 6.4 (Point Scale mental age) is 1.3 years lower; for 6.5 to 7.4 it is .8 lower; for 7.5 to 8.4 it is .3 lower; for 8.5 to 10.4 it is .6 higher; for 10.5 to 12.4 it is 1.0 higher and for ages above 12.5 it exceeds the Binet by increasingly greater amounts. The differences in the upper part of the scale are, of course, only natural since the Binet ratings were obtained from the Goddard revision, in which it is impossible



to attain a mental age higher than 12, while on the Point Scale the children could be graded as high as 18.

For the same reason as that given in the preceding paragraph we shall give no detailed discussion of the Binet and Point Scale I Q's. In order to eliminate the errors which would be introduced by taking the limit of the Binet examination (12) as adult mental age, we used 16 as the divisor in our computation of I Q's in each scale. The median of the Point Scale I Q's is .65; that of the Binet I Q's is .61. This slight difference may be explained by the fact that the method used prevents the attainment by an adult of a Binet I Q of more than .75 since the highest mental age possible is 12, and therefore lowers the number of large Binet without affecting Point Scale I Q's. Moreover, the Binet I Q's correlate by rank differences to .84 with the Point Scale I Q's.

This brief comparison of results by the two scales shows: 1) between the Point Scale mental ages of 6.5 and 12.4 the average difference between Point Scale and Binet mental ages is not more than a year; 2) if the I Q is used instead of the mental age, the results of the two scales agree very closely.

#### COMPARISON OF THE REACTIONS OF THE NORMAL AND THE FEEBLE-MINDED. THE "VARIATION TOTAL"

Our data furnish a basis for comparing the typical reactions of the feeble-minded with those of the normal. Dr. Yerkes very kindly allowed us to study the records of 503 cases which he used in the original calculation of his norms for English speaking subjects. From these records we determined the distribution of scores for each test for each age, counting 4.5 to 5.4 as age 5, etc. The mode, of course, in some places included only a small number of the cases, and we therefore selected the most frequent neighboring scores widely enough to include 75% of the cases. That is, we determined what central scores taken together made up 75% of the replies at a given age, by using the modal score, and, if necessary, the neighboring scores. When neighboring scores had to be used the largest ones were taken first. If there was a second mode or if there was a second large number, differing by not more than 1 or 2 from the mode, this was included. The table of scores making up 75% of replies was then smoothed, and the final numbers which were settled upon as "expected scores for normal subjects" are given in Table IV. Modal scores are italicized and the per cent of cases included in any

group of scores is indicated by the number given in small type. The only exception to this is test 6. The original examination gave slightly different scoring for this test so that it was impossible to say exactly what its modes were for the later years.

TABLE IV

EXPECTED SCORE FOR EACH TEST AT EACH AGE (NORMAL CHILDREN)

No. of	Test Score 18-24		25-30		31-37		38-45		46-52	
1	2, 3	(61)	3	(47)	3	(74)	3	(89)	3	(100)
2	1, 2	(57)	3, 4	(68)	3, 4	(70)	4	(58)	4	(71)
3	1	(57)	1	(74)	3	(60)	3	(51)	3	(62)
4	2, 3	(89)	2, 3	(74)	3	(51)	3	(44)	3	(44)
5	0	(89)	0	(71)	0, 1, 2	(77)	2, 3, 4	(89)	4	(78)
6	2, 4		2, 4		2, 4		2, 4		2, 4	
7	3, 4, 5, 6	(91)	6	(50)	6	(59)	6	(79)	6	(78)
8	0	(91)	0	(79)	0	(70)	0, 1, 2	(100)	0, 1, 2	(100)
9	0, 1	(74)	1, 2	(74)	1, 2, 3	(81)	2, 3, 4	(70)	4, 5	(53)
10	2, 3, 4	(69)	2, 3, 4	(76)	2, 3, 4	(59)	4	(69)	4	(53)
11	0	(60)	0, 1	(59)	0, 1	(62)	0, 1, 2	(75)	0, 1, 2, 4	(100)
12	1	(47)	1	(44)	1, 2	(70)	2	(77)	2, 3	(84)
13	0	(67)	0	(53)	0	(45)	1	(42)	2	(44)
14	0	(100)	0	(100)	0	(96)	0	(94)	0, 2	(78)
15	0	(57)	0, 1	(71)	1, 2	(64)	2, 3	(63)	2, 3	(67)
16	0	(94)	0	(79)	0	(79)	0	(54)	0	(44)

18	0	(100)	0	(100)	0	(100)	0	(99)	0	(91)
19	0	(100)	0	(100)	0	(100)	0	(99)	0	(80)
20	0	(94)	0	(88)	0	(85)	0	(68)	1	(47)

		53-60 (100)		61-66 (100)		67-71 (100)		72-75 (100)		76-7 (100)
1	3		3		3		3		3	
2	4	(77)	4	(100)	4	(100)	4	(100)	4	(100)
3	3	(85)	3	(100)	3	(100)	3	(100)	3	(100)
4	3, 4	(67)	3, 4	(72)	3, 4, 5	(97)	3, 4, 5	(95)	3, 4, 5	(97)
5	4	(67)	4	(100)	4	(97)	4	(100)	4	(100)
6	2, 4		2, 4		2, 4		2, 4		2, 4	
7	6	(66)	6	(62)	6, 7	(77)	6, 7, 8	(86)	6, 7, 8	(81)
8	2	(62)	2	(79)	2	(71)	2	(76)	2	(77)
9	5	(39)	5, 6	(77)	5, 6	(94)	6	(81)	6	(87)
10	4, 5	(62)	4, 5, 6	(74)	5, 6	(48)	6, 7	(67)	6, 7	(51)
11	2, 3	(61)	2, 3	(74)	3	(55)	3	(71)	3	(74)
12	2, 3, 4	(95)	3, 4	(82)	4	(55)	4	(57)	4	(71)
13	2	(43)	2, 3	(69)	3, 4	(65)	3, 4	(62)	3, 4	(81)
14	0, 2, 4	(100)	2, 4	(85)	2, 4	(81)	4	(86)	4	(81)
15	2, 3	(54)	3, 4	(67)	4, 5, 6	(87)	4, 5, 6	(81)	4, 5, 6	(81)
16	0, 1	(67)	1, 2	(51)	1, 2, 3	(65)	1, 2, 3	(71)	2, 3, 4	(77)
17	1, 2	(64)	1, 2	(51)	2, 3	(68)	3, 4	(67)	3, 4	(74)
18	0, 1, 2	(85)	2	(59)	2, 4	(77)	2, 4	(86)	4	(51)



19	0, 2	(95)	0, 2	(82)	2, 4	(90)	2, 4	(90)	2, 4	(90)
20	1	(61)	1, 2	(74)	2	(51)	2	(29)	2, 3	(68)
1	3	80-82 (100)	3	83-85 (100)	3	86* (100)	3	87-88 (100)	3	89-100 (100)
2	4	(100)	4	(100)	4	(100)	4	(100)	4	(100)
3	3	(100)	3	(100)	3	(100)	3	(100)	3	(100)
4	4, 5	(95)	4, 5	(85)	4, 5	(67)	4, 5	(93)	5	(86)
5	4	(100)	4	(100)	4	(100)	4	(100)	4	(100)
6	2, 4		2, 4		2, 4		2, 4, 6		2, 4, 6	
7	6, 7, 8, 9	(100)	8, 9	(55)	8, 9	(83)	8, 9	(57)	8, 9	(76)
8	2	(89)	2	(95)	2	(100)	2	(93)	2	(97)
9	6	(89)	6	(80)	6	(100)	6	(100)	6	(97)
10	6, 7	(58)	6, 7, 8	(90)	6, 7, 8	(67)	7, 8,	(71)	7, 8	(72)
11	3	(68)	3	(75)	3	(67)	3	(86)	3	(66)
12	4	(63)	4	(75)	4	(83)	4	(100)	4	(90)
13	3, 4	(95)	4	(80)	4	(83)	4	(93)	4	(83)
14	4	(89)	4	(85)	4	(83)	4	(93)	4	(93)
15	6, 7, 8	(100)	6, 7, 8	(90)	6, 7, 8	(100)	6, 7, 8	(93)	8	(72)
16	3, 4	(42)	3, 4	(75)	4	(50)	4	(57)	4	(62)
17	3, 4, 5	(100)	3, 4, 5	(85)	3, 4, 5	(100)	4, 5	(79)	4, 5	(86)
18	4	(42)	4, 6	(80)	4, 6	(100)	6	(50)	6	(72)
19	4	(68)	4	(60)	4	(33)	4	(64)	6	(66)
20	2, 3, 4	(89)	2, 3, 4	(65)	3, 4, 5	(83)	3, 4, 5	(71)	5, 6	(66)

\*Only 6 cases.

From the table of expected scores we have obtained a "Variation Total" (V. T.), i. e. the sum of variations from the expected scores of that mental age for each normal case, for each of our 200 feeble-minded cases at the Waverley School, and for a group of patients at the Psychopathic Hospital. Patients diagnosed as feeble-minded are grouped in Table V with the Waverley cases. This table gives the distribution of Variation Totals for all the cases. In the last column will be found the distribution for a number of psychoses grouped together; the cases of dementia praecox, alcoholic psychosis, epileptic psychosis, syphilitic psychosis, unclassified paranoid psychosis, cases pronounced by all the staff to be psychotic but where there was disagreement as to the particular psychosis in question, and a few scattering cases of arterio-sclerotic psychosis, drug psychosis, etc. From this group we have excluded our cases of Psychopathic Personality, Manic Depressive Insanity, Hysteria, and Psychoneurosis, because these groups are in general so near the normal.

The medians, upper and lower quartiles for the different psychoses are given in the following abbreviated table:

Diagnosis	Median	Lower Quartile	Upper Quartile
Normal	7	5	9
Not psychotic	7	6	10
Retarded or subnormal	9	7	12
Feeble-minded	9	7	11
Psychopathic Personality	5	3	7
Manic-Depressive	8	5	12
Psychoneurosis	9	7	11
Dementia Praecox	9	7	13
Alcoholic Psychosis	12	10	14
Syphilitic Psychosis	10	8	14
Unclassified Paranoid	8	7	9
Unclassified Psychosis	9	8	12
Grouped Psychoses	10	7	14

The extremes lie with the psychopathic personalities (median 5) and the alcoholic psychoses (median 12). The fact that the psychopathic personalities seem to vary less from the expected scores for normals than do the normals themselves may be explained easily. The psychopathic personalities give total scores on the Point Scale ranging from 66 to 96 with the median at 87,

while the normals range from 18 to 97 with the median at 55. It is evident that the higher the total score is the less, roughly speaking, is the chance for variation. Thus if a subject gives a total score of 95 he can lose only 5 points throughout the 20 tests. He cannot get more than is expected in any test because (see Table IV) for total scores between 89 and 100 the highest score possible for each test is included under the expected scores. He, therefore, cannot possibly have a Variation Total of more than 5.<sup>12</sup> We have, then, in our psychopathic personalities a group of adults grading at adult mental age, who would probably not be less variable than a group of normal adults, but are less variable than our group of normal school children.

TABLE V

DISTRIBUTION OF VARIATION TOTALS FOR DIFFERENT DIAGNOSES

V. T.	Normal	Not psychotic	Retarded or sub-normal	Feeble-minded	Psychopathic personality	Manic-depressive	Psycho-neurosis	Dementia-praeox	Alcoholic psychoses	Epileptic psychoses	Syphilitic psychoses	Unclassified paranoid	Unclassified psychoses	Grouped psychoses
0	2	1			1		1		1			1	1	3
1	12	2		1	3		1							
2	17	5		3	6				1					1
3	28	11		9	3	1		2					1	4
4	50	6	1	13	4	1		4	1	2	1		1	9
5	77	13	1	31	5	2	1	1	1	3	1		3	9
6	61	20	5	33	6	1	2	4		1			3	9
7	71	17	9	39	3		2	5	2	2	2	2	8	22
8	50	19	6	50	4	3	1	7	2	2	1	2	11	25
9	46	14	10	35	1		2	6	2	2	1	1	6	20
10	37	15	7	49	1		3	4	4	1	2		5	17
11	23	6	5	23	2		1	3	7	2	1	1	4	18
12	13	8	4	21	2	1	3	1	3	1			5	11
13	4	1	3	27		1		5	3				2	10
14	5	1	3	17		2	1	3	5	1	1		5	16
15	1	4	5	14				1	1	1			3	7
16	2	2		7					3		3		3	10
17	2		1	2				3					1	4

<sup>12</sup>This may seem to suggest that V T's should have different significance for different total scores. We feel, however, that this is not true except for the extremely high scores. For our normals we have comparable distributions for different sizes of total score except that for scores above 91 we have no V T's larger than 6.



18	1							2	2	2					6
19			2						1	1			1		4
20	1		2					2	2				1		6
21			1									1			1
22							1		1			1			2
23															
24			1										1		1
25									1						1
26															
27		1						1							1

No. of

cases 503 146 60 380 41 12 19 54 43 21 15 8 65 218

The alcoholic psychoses give by far the highest median V T. This high value is probably not a symptom of alcoholic psychosis itself, but rather of advancement of deterioration or depth of psychosis. Many persons, doubtless, would expect the dementia praecox patients to show greater variability than the alcoholics, and in the majority of hospitals for the insane this would probably be true, but in the Psychopathic Hospital in Boston we have a rather selected group. The selection may be illustrated by statements concerning two classes: the alcoholics and the dementia praecox. The latter group find their way into institutions comparatively early in life. They show hallucinations and delusions, etc., before they have deteriorated markedly and so, by the time they are greatly deteriorated they are already in a state asylum and not likely to enter a "clearing house" like the Psychopathic. Our dementia praecox cases, then, will be little deteriorated and, unless decidedly schizophrenic, will not show large variations. The cases of alcoholic psychoses, on the contrary, do not come into the hospital until they are older and until their psychosis has begun to interfere definitely with their work. Besides the initial selection there is a further selection in the cases which are referred for psychological examination. The great majority of patients under age 25 are sent for this examination. This includes a great many cases of beginning dementia praecox, and practically none of beginning alcoholic psychosis. Of the more advanced cases, the alcoholics are more accessible and so if the problem is one of degree of deterioration, a deteriorated alcoholic will, in general, co-operate better than a deteriorated dementia praecox. This means that more deteri-

orated alcoholics will be referred to the psychological department and that of those referred we shall be able to use the record of a greater per cent of alcoholics than of dementia praecox.<sup>13</sup>

The above discussion may be interpreted to mean that we may expect larger variations from cases of psychosis of long standing and that in general our data err on the side of conservatism, *i. e.*, that probably we may expect an unselected group of psychotics to show greater V T's than the ones we have given.

We find from the table that the unclassified paranoid give small V T's. The diagnosis means, practically, that the patient has no symptoms other than paranoid ideas. Admittedly, then, said patient is not taken by the psychiatrists to be either deteriorated or markedly psychotic. And we find a small V T. The manic-depressives also give a comparatively small V T, but here we have a wide range with quartiles at 5 and 12.

On the whole the outstanding feature of our table is that normals and "not psychotic" subjects give smaller V T's than do the feeble-minded, and that the feeble-minded give smaller V T's than do the deteriorated or the markedly psychotic patients.

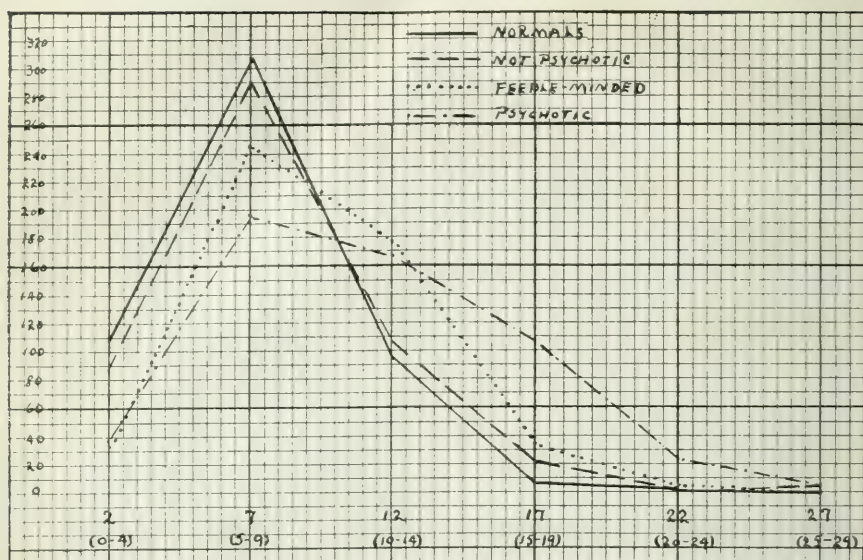
We have computed the probable correctness of the difference<sup>14</sup> for our larger groups. The average V T's for these groups are:

Normals	Average	6.8	P. E.	2.03
Not psychotic		7.6		2.44
Feeble-minded		9.2		2.40
Grouped psychotics		10.6		3.22
Probable correctness of differences between:				
Normal and not psychotic				.57
Normal and feeble-minded				.70
Normal and psychotic				.75
Feeble-minded and psychotic				.62
Feeble-minded and not psychotic				.62
Psychotic and not psychotic				.69

Plate I (a) gives the data in Table V in graphical form. We have grouped the Variation Totals into the divisions 0-4, 5-9, 10-14, 15-19, 20-24, 25-29. We have moreover supposed that a larger number of cases in any one of our four large groups

<sup>13</sup>In our computations we have thrown out all cases recorded as showing poor co-operation, and all these having any language difficulty.

<sup>14</sup>Boring, E. G., The Number of Observations upon which a Limen may be Based, A. J. T., 1916, xxvii, p. 317.



would give the same general distribution shown by the cases already examined; and we have consequently multiplied the figures for the "not psychotic" by 3.5, those for the feeble-minded by 1.3, and those for the psychotics by 2.3 to make these groups of the same size as our normal group.

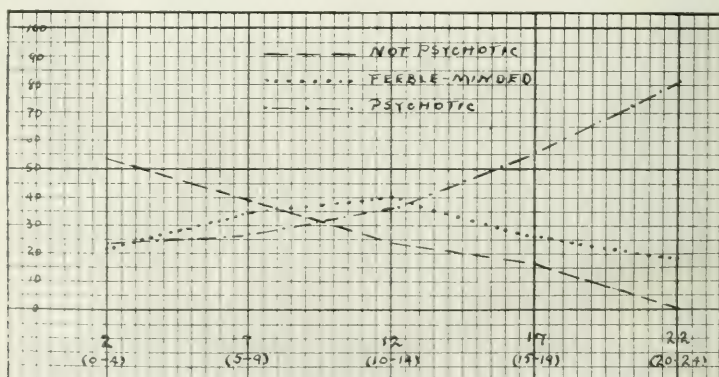


Plate I (b) shows the probability that a case having any given V T will belong to each of our large groups. Supposing 100 cases at each size V T and supposing equal numbers of the different diagnoses, then from the curves we may read the chance



that any given case is feeble-minded, or psychotic, or not psychotic. Normals are not included for the obvious reason that patients are diagnosed not "normal" but "not psychotic." The table from which this plate was made is given below:

PER CENT OF CASES FOR DIFFERENT SIZES V T FOUND UNDER  
THE DIFFERENT DIAGNOSES

V T	Not Psychotic	Feeble-Minded	Psychotic
0- 4	54	22	24
5- 9	39	34	27
10-14	24	40	26
15-19	17	27	56
20-24	0	19	81
25-29	(too few cases)		

If we disregard the diagnosis "not psychotic," we may say roughly that cases giving V T's above 15 (and particularly above 20) are more likely to be psychotic than feeble-minded.

There are many other problems in variability which we hope to attack at some future time. First, there is the question of what variations we would get if our table of expected scores gave the score expected for each *part* of each test. It seems probable that epileptics would show greater variability by parts of tests than by wholes. Then there is the question of types within the psychoses. For example, are the hebephrenic dementia praecox more or less variable than the dementia simplex? Doubtless the paranoid dementia praecox would show small variation totals. There is the question of the variability of super-normal children. From our casual observation of a few such children, it would seem that they have high V T's. Many other problems arise and offer a large field for work

TESTS WHICH ARE EASY FOR THE NORMAL OR FOR THE  
FEEBLE-MINDED

If we compare Table IV of expected scores for the normals and a similar table for the feeble-minded, we find that given the same mental age, we expect higher scores from normals in tests 4 (repetition of digits), 6 (repetition of sentences), 9 (comparison of objects), 10 (concrete definitions), 13 (free association), and 14 (three words in one sentence), and higher scores from the feeble-minded in tests 7 (interpretation of pictures), 11 (resistance of suggestion), 12 (copying square and diamond),

and 15 (comprehension of questions). These lists are drawn merely from observation of the two tables, and are not conclusive. They may be checked by approaching the problem by another path. If we take into account the algebraic sign of the variations of the feeble-minded scores from the normal expected score, we obtain the average deviations of the feeble-minded from the normal as follows:

Test	+	-	Test	+	-	Test	+	-	Test	+	-
1	0	.06	6	.08	.06	11	.14	.32	16	.50	.10
2	.01	.26	7	1.18	.07	12	.21	.11	17	.25	.16
3	.04	.07	8	.04	.22	13	.17	.55	18	.30	.19
4	.15	.24	9	.09	.53	14	.05	.28	19	.39	.13
5	.03	.26	10	.24	.18	15	.70	.04	20	.35	.16

We find then that the feeble-minded give scores higher than the normal in Tests 6, 7, 10, 12, 15, 16, 17, 18, 19, 20, and scores lower than the normal in Tests 1, 2, 3, 4, 5, 8, 9, 11, 13, 14. If we consider only the cases in which the difference is 10 or more, we have the feeble-minded superior in Tests 7, 12, 15, 16, 18, 19, 20, and inferior in Tests 2, 5, 8, 9, 11, 13, 14. When these lists are compared with the lists obtained by the first method used, we find that the two agree in calling Tests 7, 12, and 15 easy for the feeble-minded, and Tests 9, 13, and 14 hard for the feeble-minded. The only disagreement is in Test 11, which is called easy in one list and hard in the other.<sup>15</sup>

We should suppose that superiority of the feeble-minded in certain tests would be due either to special training or to the experience brought with increasing chronological age. Terman<sup>16</sup> has summarized some of the conclusions made on the influence of the age factor. If we consider tendency for percentage of successes to increase with age as the equivalent of a tendency for the feeble-minded to pass the tests more easily than the normal, then we may say that of the Point Scale tests we should expect the feeble-minded to excel in:—comprehension of questions, definitions by use, and probably copying square and diamond;

<sup>15</sup>Doll reports (N. Y. Meeting of the Am. Psych. Ass., Dec., 1916) that definitions (concrete and abstract), reactions to pictures, comparison of objects, memory span, absurdities, sentences containing 3 given words, and free association are easy for the feeble-minded; and that comparison of 2 weights, aesthetic comparison, copying square and diamond, missing parts, counting backward, arrangement of weights, and drawing designs from memory are hard for them. We agree with Doll on one point only, that the interpretation of pictures is easy for the feeble-minded.

<sup>16</sup>Terman, L. M. *The Stanford Revision and Extension of the Binet-Simon Scale for Measuring Intelligence*, Warwick & York, 1917, p. 143.

and to be inferior in:—repetition of 6 digits and of syllables, dissected sentences, 60 words in 3 minutes. This would mean that our feeble-minded should receive higher scores in tests 10 and 15, and probably in 12; and that they should receive lower scores in tests 4, 6, 13 and 18. On referring to our table, we find this upheld except in the case of 18 (dissected sentences).

In Appendix I we give a qualitative table of typical responses of feeble-minded at different mental ages.

#### DIFFICULTY OF THE DIFFERENT TESTS

The question of which tests it is safe to omit in the examination of a patient who is evidently very low grade depends upon the determination of which tests are most difficult. Some idea of this may be obtained from the table of expected scores. If we arrange for each year the tests in order of per cent of total possible score which was attained, we find that roughly speaking the first ten tests are easier than the last ten, that test 1 is easiest of all, that tests 2 and 3 come next, and that 16, 17, 18, 19 and 20 are the hardest. Such a method, however, does not give results exact enough to use in determining the tests which may be omitted. If we take the original data on our feeble-minded for each test and find the average per cent of total possible score for each test attained by the 200 cases, we find that tests 1, 2 and 3 are the easiest; then come 5, 7 and 12; then 4, 8, 9, 10 and 11; then 6, 13, 14, 15, 16, and 17; and hardest of all are 18, 19, and 20. Since the whole of tests 4 and 6 is not given unless all preceding parts have been passed, we should not consider them in a comparison of the different tests. The other eighteen tests are found to be arranged in the Point Scale in the order of increasing difficulty with the exception of test 12 which is easier than test 8 and harder than test 7.

The subdivisions are generally arranged in the Point Scale in order of increasing difficulty. Some exceptions to this rule are that in test 10 part (c) is the easiest of all; in test 17 part (b) is the easiest; in test 19 part (b) is easiest; and in test 20 (c) is easier than (b), and (f) is easier than (d) or (e).<sup>17</sup>

In this connection it may be interesting to note that the lowest age at which any test received full credit was 5.4 when test 2 was passed. At the other end of the scale comes test 20,

<sup>17</sup> Recent experience has shown that the present European war has had a great influence on part (f) of this test; for, up to the time of the war, this part was decidedly the hardest one in the test, but since the beginning of the war, the percentage of correct responses has increased enormously.



which never received full credit under the mental age of 15. On the other hand, no one over mental age 5.9 ever failed to receive full credit in test 1.

#### RESULTS FROM THE ADULT POINT SCALE EXAMINATION

A table comparing the Adult Point Scale scores of our group with the Child Point Scale Scores has already been published<sup>18</sup> and shows that on the average the adult score is .51 of the child score. On the child scale we find a range of from 92 to 62 points; on the adult a range of from 54 to 20. If the scores on the two scales are compared by the method of Rank Differences the coefficient of co-ordination is .81 P. E. .04. There is, therefore, high correlation between the scores obtained on the two scales.

Six of our 33 cases show a somewhat wide divergence from general rules. Case 194 has an adult score which is 70% of her child score; case 189 one of 68%; case 187 one of 74%; case 188, one of 40%; case 186, one of 34%, and case 166, one of 26%. The reasons for these extreme results are not clear.

The question as to which of the adult tests are the most difficult for our subjects may be answered roughly by comparing the average per cent of total score which was obtained for each test. The tests arranged in order from easiest to hardest are as follows: 2 (comparison of weights) 85%; 19 (copying diamonds), 71%; 20 (designs from memory) 68%; 9 (absurdities), 68%; 17 (ball and field), 50%; 1 (description of pictures), 50%; 5 (memory for sentences), 47%; 4 (suggestibility), 45%; 12 (relation test) 44%; 10 (analogies), 42%; 7, (comprehension of questions), 41%; 6 (comparison of objects), 41%; 3 (memory span), 41%; 8 (definitions) 30%; 13 (box test), 29%; 11 (association of opposites), 27%; 16 (code), 15%; 15 (comparison of capital letters), 14%; 18 (geometrical construction), 8%; 14 (ingenuity) 7%.

In Dr. Yerkes' revision of the adult scale, he has dropped test 2 and 19, as being unsatisfactory, and has dropped 14 on account of a very large sex difference found. These changes are in accordance with the impressions gained in giving the examination to the feeble-minded. We also found great variations in test 1, due apparently to too great a range of interpretation of directions; some subjects try to give a description from an artistic point of view, and so fail in the end to give the number of details necessary for full credit, although their discussion of the picture

<sup>18</sup>Yerkes and Rossy, *op. cit.*, p. 572.

may be, by ordinary standards, far superior to an enumeration of things seen in the picture.

It may be remembered that we expected to work out the significance of the separate tests as tests of intelligence. We approached the subject from several points of view, such as finding the coefficient of variability for each of the tests, finding the coefficient of correlation between scores on separate tests and total scores, etc., but our results convinced us of nothing more than the fact that the question could not be settled without the use of much more statistical work than we had time to give or than the paucity of our data would authorize us to give.

#### CONCLUSIONS

1) The revised Point Scale norms give a more probable distribution of cases than do the old norms.

2) The Intelligence Quotient is preferable to the Coefficient of Intelligence both from a theoretical point of view and from the application to individual cases.

3) Point Scale and Binet mental ages agree well for the middle portion of the range of ages. Point Scale and Binet I Q's, both computed with 16 as adult age, give a coefficient of correlation of .84.

4) Tests which are easy for the feeble-minded are: comprehension of questions, definitions by use, and copying square and diamond. Tests which are hard for them are: repetition of 6 digits and of syllables, and giving words in three minutes.

5) The tests on the Point Scale are arranged approximately in order of difficulty.

6) The Adult Point Scale (preliminary form) gives scores about one-half of those obtained by the same subject on the Child Point Scale.

7) Either 12 is decidedly too low for the Point Scale mental age above which persons are not feeble-minded, or the Waverley School has a number of children who are not intellectually inferior.

8) The Variation Total is useful as an aid in differentiating between feeble-mindedness and deterioration.

## APPENDIX A

## VARIETIES OF ANSWERS GIVEN AT DIFFERENT MENTAL AGES

(Figures in parentheses indicate mental ages at which the different answers were given.)

## Test 1

There were in all only three failures (5, 8, 9) in this test and all of these came in the comparison of the third pair of faces.

## Test 2

No failures were made in picture a; nine (6 to 12) occurred in picture b alone; thirteen (6 to 10) in picture c alone; nine (8 to 15) in picture d alone; three (7 to 9) in both b and c; seven (8 to 9) in both c and d; and four (5 to 8) in all three pictures b, c, and d. We should therefore expect picture a to be passed if any of the test is passed, and should expect part c to be failed more often than either b or d.

## Test 3

No failures were made in part a. Four subjects (5 to 9) failed in part b; three (6 to 8) in part c; and nine (5 to 8) in both c and d.

## Test 4

(This test needs no discussion since it is evident that each part is more difficult than the part preceding.)

## Test 5

(Mental age 10) No failures to count backward from 20.

(9) 77% succeed from 20; 7% from 15; 8% from 10; 1% from 5;  
7% fail

(8) 55% succeed from 20; 15% from 15; 9% from 10; 9% from 5;  
12% fail

(7) 25% succeed from 20; 0% from 15; 13% from 10; 0% from 5;  
63% fail

(6) 0% succeed from 20; 0% from 15; 0% from 10; 14% from 5;  
86% fail

There is then, some probability of a child between the mental ages of 6 and 9 receiving partial credit in this test, but ordinarily he will receive either full credit or none.

## Test 6

This test, like test 4, needs no discussion here.

## Test 7

In part a the description "man and boy pulling wagon" was given 24 times; "moving" was given as interpretation 21 times; and expressions like "no horse," "man for horse" 58 times. In part b "man and lady sitting on settee" was given 28 times and the



interpretations "man asleep" 38 times, "man dead" 13 times, "poor" 16 times, "no home" 13 times, "sick" 14 times. In part c "standing up" and "looking out the window" were practically the only descriptions given, and "in prison" the only interpretation.

Typical answers for the different mental ages are:

*Part (a)*

- (6) "Man and boy pulling the wagon," "Wheels are on crooked."
- (7) "Pulling team along," "Man trying to tip it over."
- (8) "Team tipping over. One old man and one boy. Two wheels off," "Man for a horse. Man pushing him."
- (9) "Man and boy pulling cart with load of furniture," "Peddlar's cart. Man sells things, boy helps him," "Moving. Making horses out of man and boy. Germans after them."
- (10) "Pretty poor. No home." "Horse has run away. Man and boy took his place. Storm. Wagon going to tip over."
- (11) "Having hard time. It would be better if they had a horse. Load apt to tip over." "In time of war. Burnt out by a shell. Took what they could with them."
- (12) "Olden times. Poor people couldn't buy horses. Had to pull own loads." "Man poor. Was out in a dump, saw old cart. Boy belongs to him. Found as much furniture as he could. Hard working man."
- (15) "Furniture? Moving day." "Shows old man and son or grandson walking up slippery hill with cart. Furniture on cart. Seem to be moving."

*Part (b)*

- (6) "Lady and man sitting on settee."
- (7) "Sleeping on the common." "Lady and man. Lady holding on to man's arms."
- (8) "Father and mother and settee they're sitting on." "Looks as if they were cold." "Man asleep, woman awake on settee."
- (9) "He fell asleep. She looks scared." "People look poor."
- (10) "Man looks dead. Must be his daughter." "Man looks as if he was trying to help that woman." "Snowing. He's praying."
- (11) "Old and tired. Have no home to go to." "Man is sick. Lady worrying over him."
- (12) "Haven't any home to go to, so are sleeping there." "Man blind. Woman must be deaf. Lost his hat."

*Part (c)*

- (6) "Standing up, looking out window."
- (7) "Man standing near post." "Standing up on couch."
- (8) "Fixing the window." "Looking out the window."
- (9) "Looking out the window for someone." "Man in prison, looking out toward the sky."
- (10) "Locked in prison for something he's done. Trying to plead to get out." "Watching to see if his wife is coming home."
- (11) "In prison trying to look out and get air. Done something wrong in his life."

## Test 8

In cases in which partial credit was given, the following inversions in order occurred: of weights 3 and 6, twenty-nine cases (7 to 14); of weights 6 and 9, fourteen cases (7 to 13); of weights 9 and 12, twenty-two cases (8 to 15); and of weights 12 and 15, twenty-four cases (7 to 15). From this it is evident that weights 3 and 6 are differentiated with the most difficulty. According to Weber's Law we should expect that 3 and 6 would be most easily arranged, and 12 and 15 with the most difficulty. If we disregard the confusion of 3 and 6, we find the other pairs arranged as would be expected.

It is interesting in connection with this test to note that almost without exception subjects called weights 3 and 6 "light" and the other blocks "heavy."

## Test 9

*Part (a)*

The differences between apple and banana most frequently given are: shape, 153 times (5 to 15); color, 68 times (5 to 15); kind or size of seeds, 27 times (8 to 15); method of peeling, 18 times (8 to 15); possibility of eating the skin, 18 times (8 to 14). Besides these main differences, we find differences in sweetness (8 to 15); in thickness of skin (8 to 15); in kind of stem (8 to 11); in number growing together (9 to 15); in hardness (7 to 13); in core (10 to 12); in climate where grown (11 to 15); in juiciness (10 to 15) in size (7 to 14); in weight (7); in time of year obtainable (9) in nutritive value (9); and in possibility of being made into cider (11).

*Part (b)*

The differences between wood and glass most frequently given are: transparency, 90 times (8 to 15); use, 59 times (5 to 15); ease with which it is broken, 55 times; and possi-

bility of burning, 26 times (6 to 15). Other differences given less frequently are: whether it is made or grows (9 to 15); smoothness (9 to 11); method of cutting (8 to 11); shape in which it comes (9); cost (10 to 11); bark (11); color (12); whether nails can be driven into it (9); whether it is usually painted or varnished (13); and whether it becomes soft when left in water (12).

*Part (c)*

The differences between paper and cloth most frequently given are: use, 114 times (5 to 15); ease with which it is torn, 44 times (8 to 15); possibility of writing on it, 20 times (7 to 15); and possibility of sewing it, 10 times (8 to 12). Other differences given less frequently are: thinness (8 to 13); smoothness (8 to 11); whether it is woven or pressed (14 to 15); whether it burns easily (8 to 9); what it is made from (11); softness (12); cost (12) and whether it washes (8).

From this we see that the differences most often given are those of appearance and use. Differences in use are not given in part (a) because the use of the two is the same; similarly differences in appearance are not given in part (c).

Test 10

*Part (a)*

In cases where partial credit was given there were 156 definitions in terms of use (5 to 15) and 23 definitions (8 to 12) where a spoon was said to be lead, tin, silver, steel, brass or metal.

*Part (b)*

In cases where partial credit was given, there was 142 in terms of use (5 to 15); and 12 (8 to 11) where a chair was said to be wood.

*Part (c)*

In this part we have 99 cases (5 to 15) in terms of use, and none in terms of material.

*Part (d)*

In this part there were a great many statements which were classed as use, although they were often merely statements about a baby, such as "what you rock," "take care of," "plays all the time" (5 to 11). The definition "infant" was given 36 times (7 to 15). There were no definitions in terms of material.

Test 11

In this test there seems to be no tendency for errors to occur in



the comparison of any particular pair of lines.

### Test 12

#### *Part (a)*

There was only one case of no credit for the square (6).

There were 44 cases of half credit (5 to 12) and 155 of full credit (5 to 15).

#### *Part (b)*

There were 22 cases of no credit for the diamond (5 to 9); 66 of half credit (6 to 15); and 112 of full credit (7 to 15).

It is evident, of course, that the diamond is much more difficult than the square.

### Test 13

In this test there were 43 cases (5 to 15) in which less than 30 words were given; 49 cases (5 to 15) of 30 to 44 words; 48 cases (8 to 13) of 45 to 59 words; 34 cases (8 to 15) of 60 to 74 words; 22 cases (9 to 15) of 75 to 99 words; and 4 cases (8 to 15) of over 100 words.

### Test 14

There are several kinds of error in this test. Total failure to give anything there were 34 cases (5 to 11); of giving three separate sentences, 37 cases (7 to 15); of using only two of the words 12 cases (6 to 10); of using only one word, 7 cases (7 to 8); and of making senseless sentences 6 cases (8 to 10).

If these failures are arranged in order of the average mental age of the subjects, we have: no sentence and only one word used (7.7); senseless sentences and only two words used (8.7); and three sentences given (9.0).

### Test 15

Typical answers for the different mental ages are:

#### *Part (a)*

(6) "Hurry." "Go to Boston." "Get on another."

(7) "Telephone." "Have to stay there." "Wait for another."

(8) "Stay and wait for another." "Walk."

(9) "Wait and get another." "Take electric car."

(10) "Ask when next one comes," and other correct answers.

#### *Part (b)*

(6) "Very sorry." "Cry." "Serve them back." "Say 'Thank you.'"

(7) "Apologize." "Be nice to them." "Say I'm sorry too."

(8) "Be kind to them." "Please excuse me." "Forgive them."

- (9) "Beg their pardon." "Say all right." "Forgive them."

*Part (c)*

- (6) "Cause he's disagreeable." "He steals."  
 (7) "He don't mean all he says." "Don't know any better."  
 (8) "Give him another trial." "Might be telling a story."  
 (9) "It's meaner than saying." "Shouldn't judge him."  
 "Actions are more than what he says."  
 (10) "Sometimes you can't always believe what he says."  
 "What he does you can see him doing it." "Judge him by  
 looking at him, can tell if he's telling a lie."  
 (11) "Actions speak louder than words." "Cause you can  
 tell better by what he does."  
 (12) "Sometimes people say what they don't mean. Their  
 actions show more than what they say." "Can *see* what  
 they do."

*Part (d)*

- (6) "Because they're always disagreeable and cranky."  
 "Tell the truth."  
 (7) "Because we don't do right." "Cause they don't know  
 what they're doing."  
 (8) "Because they're rude." "I wouldn't." "Give them  
 kind words."  
 (9) "Because we're sorry." "When angry don't think of  
 the things you do as quickly as when you're not angry."  
 (10) "Feel more sorry for them." "With anger, he's not  
 really responsible."

Test 16

*Part (a)*

The most common error was to draw the figure as a cube. The reason for this was apparently that the subjects named the figure a "box," and then afterward drew the ordinary figure of a box.

*Part (b)*

There was no error which appeared more often than other errors.

Test 17

Typical answers for different mental ages are:

*Part (a)*

- (6) "Hands in pockets." Repetitions of the sentence.  
 (7) "Because he was drinking." "Silly." "Hands in pockets."

(8) "Trying to show off." "Charlie Chaplin." "Anybody that goes by don't swing their cane."

(9) "No gentleman swings his cane." "Looks funny on the street." Correct answers.

(10) "Should have been walking sensible." Correct answers.

*Part (b)*

(6) "Fell on the ground." "Broke his legs."

(7) "He cured him." "Went too fast."

(8) "He hadn't ought to have been riding." "If he had been more careful, he wouldn't have cut himself." "Died before he got there, maybe."

(9) "Fell on his head. Don't often see people falling on their heads." Correct answers.

(10) Correct answers.

*Part (c)*

(6) Repetition of sentence. No response.

(7) "Paul." "Should say self last."

(8) "Three different brothers; wasn't the same brothers." "Should have said I."

(9) "If it was a girl, he had only two brothers and a girl." "Trying to make you think he had an extra brother."

*Part (d)*

(6) Total failure.

(7) Total failure.

(8) "Funny place to inquire." "Passed the road."

(9) "Shouldn't go to the blacksmith, should go to the station." "Wasn't any blacksmith there."

(10) "They don't teach you to read at the blacksmith-shop." Correct answers.

(11) "Should inquire at the post-office." "Ask one of the people that's walking on the street." Correct answers.

*Part (e)*

(6) Total failure

(7) Total failure

(8) Total failure

(9) "Why should they?" "Safer in the last car than in the first." "If one fails, they all go." "Last car can't leave off; it's a baggage car."

(10) "If last car is more damaged, it's better to leave it off." "Have to leave it off before it gets damaged." Correct answers.



- (11) "Anyone amongst them is damaged enough." "They think the last car will slip off." Correct answers.  
 (12) "Front car would be most in danger, it has to follow where the train goes." Correct answers.

## Test 18

*Part (a)*

The sentence most frequently given was "I asked my teacher to correct the paper." This was given 50 times (8 to 15); "I asked the teacher to correct my paper" was given 18 times (8 to 15); "I asked my teacher to correct my paper" 17 times (8 to 15); "I asked the teacher to correct the paper" twice (9 to 12).

*Part (b)*

In this part the sentences "A good dog defends his master bravely" and "A good dog bravely defends his master" were given 30 times (10 to 15); "A good master bravely defends his dog" 5 times (12 to 15). Correct sentences in which "good" modifies the second noun used, such as "A master defends his good dog bravely" and sentences in which "his" modifies the first noun, such as "His dog defends a good master bravely" were given 6 times (8 to 15).

*Part (c)*

In this part "We started at an early hour for the park" and "We started for the park at an early hour" were given 33 times; "We started early at the park for an hour" 3 times (10 to 12); and "We started at the park for an early hour" twice (11).

## Test 19

Typical answers for this test are:

*Part (a)*

- (6) "Sitting on." "Sister." "Give anything away what you have."  
 (7) "Haven't got no home." "When you go any place." "To help the people."  
 (8) "Bird." "Little wagon." "Carriage." "Person ain't got no home, on charity."  
 (9) "Poor people." "They have meetings." "Be good to a person." "Love to God." "State Board of Charity be 'gardeens.'"  
 (10) "Kindness." "To be good." Correct answers.  
 (11) "Doing some kind act." Correct answers.

(12) "Doing good for somebody, help them." Correct answers.

*Part (b)*

(6) "Priest." "Don't obey, ask."

(7) "Do something that's right." "Don't know how to behave yourself." "To obey your teachers."

(8) "Bad." "When you don't mind." "Some kind of a bird." "To be good."

(9) "Rough." "Be polite." "True." Correct answers.

(10) "Law and liberty." "Be good and kind." Correct answers.

*Part (c)*

(6) "Minister." "Hope." "Don't ask for anything."

(7) "Be good." "When you can do things."

(8) "Be bad." "Don't digest your food." "Be honest and careful what you do."

(9) "Do what's right." "Do just what you're supposed to do." "Peace, be kind to horses and animals."

(10) "When a man is arrested, put him in justice." "The law." "To have peace." Correct answers.

(11) "Be kind." "Doing right." Correct answers.

(12) "Have peace." "In court." Correct answers.

In this test, on the whole we get at the younger mental ages a confusion of the abstract term with some similar concrete term such as "Carriage" (Chariot?) with "Charity;" "Priest" with "Obedience;" and "Digestion" with "Justice." At higher mental ages, we find definitions which show some inkling of the real meaning, such as, "Haven't any home" for "Charity;" "To be good" for "Obedience;" and "The law" for "Justice."

**Test 20**

*Part (a)*

Of the possible correct answers, "peel" was given 100 times (7 to 15), and "peeling" 6 times (11). Probably the reason that "peel" is more common and given at lower ages than "peeling" is that it may be used as a verb and the younger children tend to take the "to" in the analogy as the beginning of an infinitive. Among the incorrect answers we have 50 verbs (8 to 15); 6 nouns (5 to 12); 1 adjective referring to the second half of the analogy (8) "yellow;" and 1 answer which relates to the first part of the analogy (6) "Oyster goes in with cracker."

*Part (b)*

In this part "knee" was given 40 times (7 to 15); verbs 100 times (5 to 15); nouns referring to the second part 52 times

(8 to 15); and nouns referring to the first part 5 times (6 to 9).

*Part (c)*

In this part "glove(s)" was given 43 times (9 to 15); "mittens" 2 times (9); verbs 94 times (5 to 15); nouns relating to the second part 40 times (8 to 15); words relating to the first part 9 times (5 to 10).

*Part (d)*

In this part "crooked line" was given 15 times (8 to 15); "crooked" 5 times (9 to 15); "crooked one" 4 times (11 to 15); "uneven line" once (12); "round one" once (12); "curve" once (14); verbs 31 times (6 to 11); nouns relating to the second part 7 times (9 to 12); words relating to the first part 58 times (6 to 13).

*Part (e)*

In this part "absent" was given 8 times (9 to 15); "future" 7 times (9 to 12); "be absent" once (8); "past" 14 times (9 to 15). There was some confusion between "present" meaning time, and "present" meaning gift. Of words relating to time, there were 21 verbs (8 to 11) and 15 nouns (9 to 15). Of words relating to a gift, there were 16 verbs (7 to 14); 11 nouns (9 to 12). There were 32 words relating to the first part of the analogy (6 to 12).

*Part (f)*

In this part "peace" was given 39 times (8 to 15); "have peace" 2 times (9 to 10); "be in peace" once (9); and "make peace" once (11). Of words relating to the second part, there were 108 verbs, of which "fight" was given 44 times (6 to 13); "cease" 22 times (8 to 13); "stop" 15 times (8 to 15) nouns 5 times (8 to 12); and adjectives 8 times (9 to 15).

There were 23 words given relating to the first part (5 to 11). Throughout this test we find that in the incorrect answers verbs are given more often and at younger mental ages than other parts of speech, nouns come next and then adjectives. Part (e) gives the greatest variety of replies, probably because there is no verb which is readily associated with "present."



## APPENDIX B

TYPICAL ANSWERS TO POINT SCALE QUESTIONS AND THEIR  
EVALUATION

## Test No. 7 (a):

*Full Credit (3):* "Man and boy. He's pulling that cart, got it loaded with something, pulling hard." "Man trying to pull it up." "Ain't got no horse." "Looks as if it was going to tip over." "Raining. Boy's father pulling load of furniture up hill." "Peddler's cart. Man sells things. Boy helps him." "Have no horse. Must be kind of poor, in war, bringing their furniture with them. Neither look very intelligent." "Heavy load. Men tired." "Seem to be moving."

*Credit of 2:* "Man and boy dragging cart." "Hay or something in team. Two men pulling it." "Pulling team up. It's kind of tipping over. Man and boy." "Pulling load of furniture on wagon."

*Credit of 1:* "Man and boy, furniture, baskets, rain, post, tables." etc.

## Test No. (b):

*Full credit (3):* "Man sleeping, lady thinking." "He's sick or dying, she is taking hold of his arm." "People look poor." "That lady shouldn't be there." "Man must be dead." "Man looks as if he was trying to help that woman." "Man and woman side of the road. Man older than woman." "She looks cold." "Man making love on a settee." "Man lost his hat." "Man looks dead. Must be his daughter." "Must be without a home, poor, man sick. Woman trying to tell what is the matter with him, both sad." "Out of work, hungry, poor." "Man sleeping."

*Credit of 2:* "Sitting down on a settee." "Lady sitting on a settee. Man side of her." "Lady and man. Lady holding on to man's arms." "In a park. Old man and woman sitting on a bench. Hat on ground."

*Credit of 1:* "Man and woman, trees, and snow." "Man and lady."

## Test No. 7 (c):

*Full credit (3):* "Standing up to trees in a house where they are camping out." "Looking out window for someone." "Watching to see if his wife is coming home." "Prisoned in." "He fell asleep standing up." "Peeking out the window." "Stand-

ing up. Lonesome. Looking out the window." "Standing as if saying prayers."

*Credit of 2:* "Standing up looking out window." "Man looking in a glass." "Climbing up a tree." "Fixing the window." "Man reading."

*Credit of 1:* "Telephone, chair, book." "Man, chair, box, two tables."

### *General Rules for Grading Test No. 7*

For simple enumeration, whether all articles are named correctly or not, give 1 point. As for example in (b), subjects will sometimes say "two men" or "two women" instead of a man and a woman.

For simple description, statements about the position of persons or objects, statements of color, or any statement concerning anything that can be *seen*, give 2 points.

For a "story" about the picture, any statement that implies any sense than sight (as, for example, statements of temperature, or sound), statements about something that has happened before or is to happen after the moment at which the picture is taken, statements concerning the feelings of persons, or of the relationship between persons, give 3 points.

*Doubtful cases.* Some statements which would surely be interpretation when given by an older person, are probably mere enumeration when given by children. As, for example, "old man" and "grandfather." In such cases, do not grade until you have read answers given for other parts of this test. If the other parts give enumeration, count the doubtful case as enumeration; if they give interpretation, count the doubtful as interpretation.

Test No. 9 (a):

Give credit for such differences as: "Apple round, banana long." "Apple red, banana yellow." "Apple sometimes red, sometimes green, banana sometimes yellow, sometimes red." "Apple harder than banana." "You peel a banana with your fingers, have to peel an apple with knife." "Banana sweeter than apple." "You can eat the skin of an apple, can't of a banana." "Skin of a banana is thicker." "Can get banana all the year, apple only part of the year." "Apple has stem, banana doesn't." "Apple has core, banana doesn't." "Banana grows in bunches, apple doesn't." "Apple is juicier than a banana." "Apple weighs more than a banana." "Apple grows in cold climate, banana in warm." "Make cider of apples, not of bananas." "Apple easier to digest."

## Test No. 9 (b):

Give credit for such differences as: "Glass is transparent, wood is not." "Wood burns, glass does not." "Glass breaks easier than wood." "Wood grows, glass is made." "Use wood for houses, etc., glass for windows, etc." "Wood gets soft in water, glass does not." "Glass is more expensive than wood." "Wood is brown, glass is no color (or white)." "Glass generally comes in flat sheet, wood in blocks." "Wood has bark, glass hasn't." "Wood is generally painted or varnished, glass isn't." "Can drive nails into wood, can't into glass."

## Test No. 9 (c):

Give credit for such differences as "Paper tears more easily than cloth." "Cloth is woven, paper is pressed." "You can write on paper, can't on cloth." "Can sew on cloth, can't on paper." "Cloth is for clothes, paper for wrapping." "Paper is generally smoother than cloth." "Cloth is more expensive than paper." "Cloth washes, paper doesn't." "Cloth is generally thicker than paper." "Paper is made from wood or rags, cloth from threads." "When you crumple up cloth, can smooth it out again, can't paper." "Paper burns more easily than cloth." Give *no* credit for "Paper is white and cloth is white." "You can write on paper, well, you can write on cloth too."

*Doubtful*: "Apple is *red*. Banana is *long*." If the subject implies the opposite, give credit (this happens often with average adults). If the opposite is not implied, do not give credit. This answer of course does not show as logical a train of thought as when the differences are paired off. Count such as "You can write on paper, and you can sew on cloth" as one difference, —that of use; but count "You can write on paper, and you can't on cloth. You can sew on cloth, but not on paper," as two differences.

## Test No. 10 (a):

*Full credit* (2): "Silverware." "Piece of silver." "Article used to eat with." "Instrument used to eat with." "Long and round at top, cylindrical, use to eat with, and measure by."

*Half credit* (1): "What you eat out of." "Stir things with." "Silver." "Tin." "You can eat from it. It is silver." "Little lead thing." "Round."

## Test No. 10 (b):

*Full credit* (2): "Piece of furniture." "Wood ware." "Article you sit on." "Four legs and four rounds, back and seat to sit on." "Wooden object."

*Half credit* (1): "What you sit on." "Have four legs, sit on."



"Wood." "Made of wood, four legs." "Wooden chair with soft cushions." "One kind of chair is different, rocking-chair."

Test No. 10 (c):

*Full credit* (2): "Animal." "Domestic animal." "Quadruped." "Beast of burden." "Four legs, tail, two eyes, mouth and nose that eats."

*Half credit* (1): "What you drive." "To ride on a team." "Four legs, ears." "What ploughs and does farm work." "To work with."

Test No. 10 (d):

*Full credit* (2): "Creature, two legs, and head just like we are." "Human being." "Small child." "Child under three or four years." "Little boy or girl."

*Half credit* (1): "What you rock." "Crying." "Small and horse is bigger." "Infant." "To creep on floor." "To care for." "Little boy to your mother." "Grows up, gets big all the time." "Nurse looks after the baby." "Belongs to a mother."

*General Directions for Grading Test No. 10*

Give full credit for classification, or for detailed description. Give half credit for definitions in terms of use or in terms of some attribute of the object as "baby cries," or for words which are practically synonymous as "infant" or for meagre description.

Test No. 14:

*Full credit* (4): "I went to Boston to see the pretty river and spent most of my money." "I am going to Boston to spend some money on the river." "I lost some money in the river going through Boston." "I went to Boston shopping and had enough money left to go on the Charles river canoeing." "The Boston money works is near a river."

*Half credit* (2): "I went to Boston to my Father to get some money and I saw someone fall in the river." "Boston is a money-making place and which a river passes near." "To go to Boston you have to have money and you cross the Charles river." "Boston has got a lot of money in the state and the river is out in the ocean." "I am going to Boston to get some money next week; I am going to the river today."

*No credit*: "I went to Boston one day to spend money." "I go to Boston and bring money and saw a lady fall in the river."

*General Rules for Grading Test No. 14*

Give full credit for a single sentence containing all three words when sentence does not have verbs connected by "and." If the verbs are connected by "and" give full credit if the connection of the sense is very close. "Boston" may be used as an adjective. The sentence does not have to be true. Give half credit for two separate sentences or two which are loosely connected. If three sentences are given and the three words are used in two of these three, give half credit. A loosely connected sentence in which two of the verbs have different subjects should receive two. Give no credit when only two words are used, even if these two are used in one sentence.

## Test No. 15 (a):

*Full credit* (2): "Look for another train. Wait at depot." "Take electric car." "As what time the next train went." "Take a taxi." "Telephone."

*Half credit* (1): "Go any place at all." "Have to stay there." "Wait till it comes back." "Take a watch to see how many minutes." "Go home."

*No credit*: "Run for it." "Hurry." "Go to Boston."

## Test No. 15 (b):

*Full credit* (2): "Forgive them." "Pardon them." "Be nice to them." "Tell them all right and not do it again." "Do to them as you'd like them to do to you." "Make up with them again."

*Half credit* (1): "Serve them back." "Go up and tell them you feel the same." "Like them." "Say welcome." "Do nothing." "Let them go." "Pay no attention to them."

*No credit*: "Thank you." "Apologize." "Be sorry to them." "Take it back."

## Test No. 15 (c):

*Full credit* (2): "He don't mean all he says." "Things he did more accountable than what he says. Perhaps what he'd tell you wouldn't be true." "Can tell by their actions and by the way they say it whether they mean it or not." "Might do something he said he wasn't going to." "Can see what they do."

*Half credit* (1): "you can judge people by their actions, can tell by what they do." "Actions speak louder than words." "When he acts it, it shows more gratitude." "He does more than he says."

*No credit*: "Cause he's disagreeable." "Should judge him in his ways." "See for yourself what he does, can mostly tell when

a person is all right and when they're in wrong." "Supposed to do the right thing." "Shouldn't judge them at all."

Test No. 15 (d):

*Full credit* (2): "Think they don't mean it, they're in such a temper." "When they did it, they didn't stop to think; when they're not in anger, they plan to do it."

*Half credit* (1): "When they mean a thing, don't forgive them."

*No credit*: "Because they apologize and think more of it." "One might be done by accident; one with anger means to do it." "Better to do things without anger."

*General Rules for Grading Test No. 15*

Give full credit for full, logical answers; and for incomplete answers in some cases where the remainder is implied, as "Can see what they do." Give half credit for answers which show some slight grasp on the whole situation.

Test No. 17 (a):

*Full credit*: "Couldn't swing cane with hands in pockets." "Can't have hands in pocket and swing cane unless he had cane on his arm."

Test No. 17 (b):

*Full credit*: "If he was dead, taking him to the hospital wouldn't do any good." "If he's killed, can't get well."

Test No. 17 (c):

*Full credit*: "Trying to make you think he had an extra brother." "Couldn't be a brother to himself." "Only had two."

Test No. 17 (d):

*Full credit*: "If they can't read the first sentence, they can't read about the blacksmith." "Who was there to tell him to inquire at the blacksmith shop? The post couldn't tell him." "If you couldn't read, how could you read it at all?"

Test No. 17 (e):

*Full credit*: "If they left the last one off, the one next to the last would be in as much danger." "There would always be a last car."

Test No. 18 (a):

*Full credit*: "I asked the teacher to correct my paper." "I asked my teacher to correct the paper." "The teacher I asked to correct my paper."

Test No. 18 (b):

*Full credit*: "A master defends his good dog bravely." "A dog defends his good master bravely, etc."



## Test No. 18 (c):

*Full credit:* "We started for the park at an early hour." "We started early for an hour at the park." "We started for the park at an hour early." "We started early at an hour for the park."

*General Directions for Grading Test No. 18*

Give full credit for any English sentence containing all the given words and no other words.

## Test No. 19 (a):

*Full credit:* "Take pity on people that ain't got no homes." "Anybody is poor and ain't got no home. the charity helps them along." "To give to the needy." "When you look out for a poor person." "Love for the poor." "Society to take little wanderers and put them in homes."

*No credit:* "Give anything away that you have." "People have kind of society and help." "To do anything for anybody for nothing." "Love toward your neighbor." "Helping." "Kindness."

## Test No. 19 (b):

*Full credit:* "Mind the attendant, what they say." "To mind." "Do what you are told."

## Test No. 19 (c):

*Full credit:* "Do right by others." "Treat everybody the same." "To be fair and square with everybody." "To give one person his rights." "Not to let one do what you wouldn't let another do."

*No credit:* "To do as you'd be done by." "Doing right." "To do right." "The law."

# THE ILLUSION OF LEVITATION

## *Part Two: Clinical Aspects*

LYDIARD H. HORTON

### Foreword

*In this second section it is intended to furnish a more definite picture of the Illusion of Levitation than was presented in the first outline. This is done by a second letter to Dr. Prince, which amplifies the first.*

*The instances quoted are taken from the case histories of subjects studied by the writer at various institutions in New York City, including the Post Graduate Hospital, the Vanderbilt Clinic, the Physiological Laboratory at P. & S., and the Laboratory of the Department of Psychology at Columbia.*

*In observations of this kind upon the phases of sleep, it has been a most helpful and steadying circumstance that a student like Morton Prince should have stood ready to give aid and counsel.*

*Dr. Prince has realized that Abnormal Psychology demands of its devotees that they shall be willing to examine the "improbabilities" of mystical belief as well as to follow the "safe and sane" paths of staid laboratory demonstrations. To emphasize this open-mindedness, to which I pay tribute now, Dr. Prince's own words may be quoted from the correspondence:—*

*In this connection do not let yourself be hoodooed by any set of "authorities" with whose views your observations are not in accord. Make your own observations and so long as they are accurate and incontestable you have nothing to fear. Be careful only not to force interpretations beyond what the facts warrant.*

*With due respect both to those who insist upon adventuring into mystical realms, and to those who sedulously abstain therefrom, the natural history of the Illusion of Levitation will be carried through to a physiological analysis in the next instalment.*

*The statement below is intended to bring out the salient features of the Illusion of Levitation when it is dependent upon phenomena of general relaxation and of sleep.*

COLUMBIA UNIVERSITY,

JUNE 6, 1912

My dear Dr. Prince:

As a post-script to my letter of April 17, let me submit a few examples in connection with the process of relaxation that I described.

Lately, having again taken up these experiments I have had my attention called at various times to analogies between the state of relaxation as produced or induced experimentally on the one hand, and on the other to certain peculiar states that occur spontaneously. The analogies are not so much perceived by me as they are suggested to me by those on whom I have experimented or with whom I have talked over the method and its results.<sup>1</sup>

#### "PROJECTION" OF SENSATIONS

*Case 80.* A Jewish boy of 19 treated for anxiety neurosis. As a means of helping him to sleep I taught him how to relax, using the usual dialectic method and adding a few exercises for relaxing the eye-muscles. He proved a very good subject and presently experienced the sensations and changes of muscular tonus that I wrote of in the foregoing letter. At the onset of the sensations he said: "I have felt like this before; it used to come over me, this feeling; but I was scared of it and used to try to make it go away." When I explained the matter to him as merely a by-product of rest, he was perfectly willing to continue in the existing state of ease and even seemed to think it wonderfully agreeable. Wishing to impress the sensations upon him I said, more forcibly than accurately: "I want you to remember what you have done now, so that you can rest like this again. Don't forget how you did this." To which the boy responded: "How should I forget how to do this, when it is not me that is doing it?" "Who is doing it?" "I don't know, it just comes of itself."

#### ALARMING WAVE CHARACTER

I mention this incident to illustrate the *projected* character of the sensations in question. To be sure the projection in this case is not very marked, but still there is a suggestion as if a foreign influence were exerting itself upon the person. In my earlier experiments this was more marked. One subject who

<sup>1</sup>This method has for years, among my co-workers and subjects, borne the name "*Acopic Method*"—from the Greek (*alpha* privative and *kopes* fatigue) meaning anti-fatigue. See *Century Dictionary*.

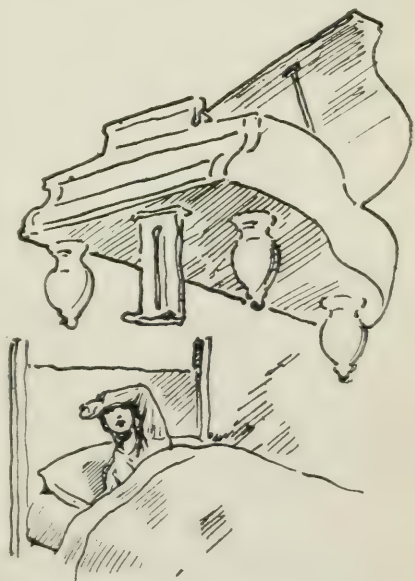


learned to relax very completely was very much impressed with the sensations in relaxation. He actually argued with me at one time that they must really represent the influx of some force. In another case a man describes his experience in the following terms: "There were waves in the room: it was as if the air were in vibration, and I thought that it seemed to be a force that placed me in communication with a certain patient whom I had asked to relax at the same time. It was the most extraordinary experience I ever had and caused me to be alarmed about continuing this work."

The former was a lawyer of the highest intelligence and the latter was a clergyman, who had done a little psychotherapy and who had tried "absent treatment" in its non-mystical form; I mean encouraging a patient to relax and think thoughts of health, while the healer by appointment was relaxing and meditating in another place.

But let me go on with cases more in point.

*Case 95.* A psychologist, instructor in one of the big Universities. He had been my subject in experiments conducted by me in 1910. Lately, in discussing the method of relaxation he said: "I meant to tell you about a sort of waking dream that I used to have. I would be lying on the bed and I would see a large heavy piano that we had, floating in the air. This was when I was a kid, ten or eleven. I would imagine I saw this piano getting larger and larger and soaring in the air above me. And I would be afraid that it was going to fall and I would cry out and the family would not know what was the matter with me, for I could not seem to tell them. Presently the piano would stop getting larger and would seem to fall and I would expect that there would be a great crash but it never came. Then the thing would pass away."



EXTERNALIZED ILLUSION OF  
LEVITATION

## SENSATIONS OF SWELLING AND RISING

*Case 88.* A woman, graduate student in biology. She took a great deal of interest in my experiments and wanted to hear all about the different stages of relaxation, (which is information I do not give to those who are to be my subjects). Although not a subject, she gave me the following description of similar sensations she had had: "I used to feel myself beginning to swell and it would bother me, because I did not know what to make of it. I seemed to get larger and larger as if I would never stop expanding. But presently it would stop and things would become natural again. I have asked my doctor about it, but I have never found anyone who understood it, except one woman who had the same sort of experience. We exchanged notes on the subject. It was very curious and used to come quite often." "Was it pleasant?" "Yes, it was pleasant, except that it was so queer." "Do you have it now?" "No, I have not had it for several years."

*Case 101.* In my own case on one occasion I dreamed of seeing a golf-ball soaring in the air, and rising in a beautiful lofting curve above a bunker surrounded by water. I seemed to be accompanying the golf-ball in its flight, as if I were in some way identified with the ball. I could see the ball and the changing vista beneath us, but I was not there in *propria persona*. In the next part of the dream I was crudely impersonating a golf-ball propelling itself through a muddy golf course. I omit the symbolism of the second part wishing merely to point out the two degrees of impersonation in the dream. In the first part of the dream the flying sensation or levitation illusion was very marked and seems to account for the partial projection of the illusion, so that it is not exactly I, but rather the golf-ball, to which the flight is ascribed.

## THE SENSATIONS BEREFT OF ILLUSION

In earlier cases I have experienced the floating sensation while relaxation was in progress and while perfectly oriented otherwise. Its onset was brought about by a deliberate process of relaxation but without any expectation of the illusion of soaring. The insight thus acquired changed for some time the character of my flying dreams, by robbing them of the illusional element. I would simply feel myself soaring in my sleep, but would not apperceive it as a flight; for I would recognize the true character of the experience and relate it to my waking experi-

ments. The identity between the illusional and the non-illusional levitation phenomena, however, must be unmistakable to anyone who has experienced the several varieties, as I have.

Now let me mention the fact that often the floating sensation is connected with a tingle. I have had it several times in such a way that the tingle resembles the strongest reaction after a shower bath. It has come to me at other times locally as if there were a thready tingle in different parts of the body. I never had paid very much attention to these things nor had taken any careful record. But later two subjects, independently and in almost identical terms described a tingle, as follows.

*Case 71.* "While you were talking and I was relaxing I felt a sort of twitching or tingling. It seemed to run from under my eye down the side of my face near the nose. I never had this before."

*Case 78.* "I had a queer sensation. I did not know what to make of it. It was a kind of a prickly sensation just in one place, I thought I would have to scratch it. It was along the thigh as far as the knee. I don't remember ever feeling anything like it before."

#### VASO-MOTOR FEATURES

My theory for all these phenomena is that they are connected with vaso-motor activity. The theory seems worth stating even before I have given you all the cases and all the threads of thought that make it appear plausible. The swelling of the body is evidently, to my notion, a projected sensation due to vaso-motor relaxation of skin vessels. The floating sensation is due to the numbness or diffusion of sensation caused by the vaso-motor relaxation plus (and this is more problematical) a more or less real inhibition of the pressure sense. All these elements of explanation are referred to in the letter of April 17.

Now as to the tingle, my own feelings during relaxation indicate that it depends on the rapidity with which the vaso-motor dilatation takes place. In one case, already reported to you, the dilation was so rapid that I felt light in the head and had an illusion of falling. No anxiety attended this phenomenon. From the beginning of the tingling I knew, or thought I knew what was going on; for I had had quite as marked a tingling once before, it having come to me in the earlier instance as my first intimation of the vaso-motor character of the floating sensation. Altho' not prepared for the dizziness which followed the sudden relaxation of the body or skin vaso-motors, its "explanation"



flashed upon me before the illusion of falling got a very strong grip on me. There was no room, it would seem, for me to put any elaborate fancies in between two facts so clearly perceived and coming so closely in connection.

#### BREEDING GROUNDS OF THE ILLUSION

But suppose similar physiological phenomena occurring in a different psychological setting. It needs no great stretch of the imagination to conceive of cases where experiences of peace and relaxation would be obtained through more or less mystical practices, such as the meditations of the saints, the contemplation of the buddhists, the reading of *Science and Health* at the bedside and so on. This implies in each case a rather wide ranging of the mind through realms of conjecture and pseudo-



#### A SECOND EXAMPLE OF LEVITATION IN DREAMS

*Dependent as in Former Case upon Vasmotor Changes*

This is a faithful, if somewhat labored, picturization of an actual dream known to have been elicited by vasomotor warming of the body surface, in response to cold while the dreamer was in bed; thus it depended upon a reaction of the mechanism that regulates temperature.

The dreamer fails to apperceive correctly (*mal-apperceives*) the corresponding sensations; these being in the main: 1. Changes of pressure from the suffusion of the blood through skin and muscles, in addition to actual pulsations. 2. Joint and muscle sensations of the dreamer's actual movements, automatically initiated in pursuit of comfort (*warmth*).

The apperceptive errors belong in the class of "trial apperceptions," as explained by the writer in the *Journal of Abnormal Psychology*, vols. for 1915-16 and 1916-17. (See also critical review of the theory in *Psychol. Bulletin* for January, 1918.)

The above statements apply exactly to the previous example, in which the dreamer ends by drawing up his legs under him and obtains an illusion of levitating in that position. In the present instance the final heat-seeking movement leads to the passing of the foot over the varied surfaces of a hot-water bottle, made of rubber and sheathed in a furry cloth bag. The resulting spatial and tactual impressions are thereupon "transposed" from the sensory field of the foot to the psycho-sensory field of the hand—a *mis-reading* of "local sign."

The initial sense of vasomotion gives rise to the illusion of floating like a balloon or inflated dummy, which swings in the way of the traffic, obliging the rapid vehicles to swerve sharply in their course along the already undulating parkway.

*Continued on Page 127*

science in which anyone can find much material to enrich and overlay the sensation I have described, covering it almost out of semblance to the original. Does not Ethel Puffer in her chapter on the *Esthetic Repose* call attention to just such illusory accretions? It remains for us to divine the underlying physiological facts. "My soul swims in the Being of God as a fish in water," says the humble Beguine, Mechthild. Again the theosophist feels his astral body floating away and visiting over the world. A book could be written full of instances of this kind that would show a perfect series of such illusions, all of them conceivably built around the actual sensations that I have encountered in their bare state among my subjects.

Here is a case in point, which has never been explained and which is quoted in Professor Muensterberg's *Psychotherapy*. I think that you will concede the close connection of this case with the cases I have cited in this post-script and in my original letter.

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"My condition was horrible in the extreme. I had consumption of the lungs and other supposedly fatal troubles, complicated by wrecked nerves. (Here follows the lady's account of the visits of a Christian Science healer) . . . At noon she left me to go to her home for lunch.

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## RECONSTITUTION

(*Experience as related*)

*(cf. "Med-State" of  
attention.*

I was pondering seriously on her reiterated 'God is love and fills the universe and there is nothing beside Him,' when I suddenly had a sensation of being lifted up or rising slowly and becoming lighter in body.

*Sudden dilation of  
the vaso-motors.*

A rush of power that I have no way of describing to you filled me. I seemed to be a tremendous dynamo

*The inhibition of  
pressure sense.*

in the air several inches above the ground and still ascending.

*A particular diffusion  
of sensation of which  
more anon.*

When I noticed everything around me becoming prismatic and more or less translucent,

**RECONSTITUTION***Lightness again.**Alarm.**The swelling sensations.**The altruistic "desire to show how" of the typical Flying Dream turned to therapeutic account.**Vasomotor relaxation and consequently greater beat of the pulses.**The "return to health."**Was this experience healthful simply because it served to remove inhibitions existing in the Function of Repose?*

I could have walked on water without sinking, and I had a distinct understanding that matter seemed to be disintegrating and dissolving around me. I was

frightened but self-conscious and quiet. I remained in this state for about three hours, my consciousness seeming to have reached ALMOST COSMIC GREATNESS.

I could have cured, I felt, any human ill, was filled with an absorbing altruistic desire to help suffering. It was tremendous and totally foreign to my every-day attitude. At the end of the day, towards twilight, I became wearied of the TREMENDOUS THROBBING and exalted state in which I still remained and gave utterance to the thought aloud. Almost before I had formulated it the condition left me, and like the sudden dropping of a weight, I struck the ground, the same dull, ordinary person of every-day experience, but with the vast difference of perfect health, radiant and lasting to the present writing. My father like myself is baffled and wondering. We are both pretty hard skeptics. I want the truth, whether it be terrible or otherwise. I am profoundly grateful to the Christian Scientist, if I regained my health through her ministrations, but I have not so far been able to label myself and rise in their church services to tell what has been done on me. The performance repels me as crude and rather bad taste. I swear to you on my honor as an American woman and mother that what I have written you is true, absolutely. If you can give me any light or if my experience may perchance give you a helping ray, my renewed lease on life may have had some purpose after all, which I have questioned in my cynical moods."



"The unprejudiced psychotherapist, adds Professor Muensterberg, will be perfectly able to find room for such cures and, if it is the duty of the scientific physician to make use of every natural energy in the interest of the patient's health, he has no right to neglect the overwhelming powers of the apparently mysterious states." (p. 317)

#### IMPEDIMENTS TO A SCIENCE OF REST

My object in writing of my experiments is to bring within the pale of science a number of "natural energies" that are at present the possession of more or less confused mystics. The association of the rest-states with mystical practices is the greatest source of difficulty that I find in presenting the facts. I am hoping that if these facts are published under your auspices this difficulty may disappear.

Yours very sincerely,

L. H.

(To be Concluded)

*Continued from Page 124*

The various items are fanciful reproductions of memories of the park at Morningside Heights. The emotional tone of the Irish policeman is anger, which gives way to complacency when the dreamer, now deflated, sets foot to the ground (contact with hot-water bottle) and pets the dog's head. The policeman is obviously an externalization of the dreamer himself—an *alter ego*.

Such is the stuff that dreams are made of.

The analysis, or rather *inventory*, cannot be completed here; but this fragment may serve as an earnest of the type of explanation that is to follow. The physiological treatment ("re-constitution") here sketched should serve, in respect of Flying Dreams at least, to give a quietus to the rather wild guesses of the Freudian school. Havelock Ellis has gone farthest in the right direction by recognizing "Aviation in Dreams" to be due to physiological mechanisms operating in sleep, rather than to wish-fulfilments. The detailed consideration of these mechanisms will form the subject of the next instalment.

Consult Havelock Ellis, "The World of Dreams," 1911, Houghton Mifflin & Company; note especially the sixth chapter, which appeared in the *Atlantic Monthly*, 1910.

## REVIEWS

THE PSYCHOLOGY OF WAR. By J. T. MacCurdy, M. D., London. William Heinemann, 1917. Pp. 68.

Every one admits that war is a terrible—though not an absolutely unmitigated—evil, and the writer of this excellent and eminently pertinent little book asserts, with good reason, that the first step toward its elimination is a thorough and comprehensive understanding of the causes that produce it. So far as these causes are political and economic in their nature, the discussion of them belongs elsewhere, and a vast amount has been written with regard to them. What is not appreciated in its true bearings, is the fact that some of the most effective of the war-producing influences lie deep in certain tendencies of human nature.

War, as he points out, "is not an isolated phenomenon, but the product of the best and worst in human kind. It would be a sad day for the race if man lost his hardihood and ideas of loyalty merely for the sake of peace. His *psyche* must be transformed, not syncopated. This change can only come from within, and only when he has learned his essential nature. The ambition of the psychologist—a fundamentally practical man—is, therefore, to set men thinking before they act."

It may be stated as a proposition to which many modern students of clinical psychology will give credence, that the phenomena of war, or—to be more accurate—the phenomena of peace and war (since these are states which can only be adequately studied as in close relation to each other)—are analogous to the phenomena of the psychoses; and, as a psychosis, war is to be investigated in the light of the modern doctrines with regard to the nature of the disorders classified broadly under that term.

To go a step further in the presentation of this view, it may be said, first, that war, regarded as a breaking away from ordinary social obligations, implies the coming into life and action of primitive, elemental motives, by which every one is swayed to a greater or less degree, but of which their possessors are for the most part unconscious. These unconscious motives have been very fruitfully studied during the past few decades, from two standpoints; namely, first, that standpoint which the "psychoanalytic movement" has done so much to render clear; and, next, from the standpoint of those who regard men, not as isolated human beings coming together incidentally to form

societies, but as persons who from their very nature, and, as it were, aboriginally and innately, are gregarious in their instincts.

The leading spirit in the first of these movements has been, unquestionably, Sigmund Freud, whose work is supplemented, with reference to war as in other respects, by Ernest Jones, from whose essay, published in 1916, MacCurdy liberally quotes.

The investigator whom MacCurdy mainly cites with reference to the second movement is the surgeon and psychologist, Wilfred Trotter, whose papers and books treating of the "herd instinct" have been so largely quoted. It seems to the reviewer fair to say that the names of other distinguished men should be referred to in this latter connection, and especially those of two writers—Josiah Royce, the philosopher and psychologist of Harvard University, and Levy-Bruhl, who has developed this thesis of the primary gregariousness of human beings quite elaborately in his admirable study of the mental operations of the primitive races.\*

War, looked at from the psychotic standpoint here presented, is, the writer thinks, a crisis for which days and years of peace gradually prepare, by tightening powerful springs which represent repressed primitive instincts and which are destined eventually to break loose from forces that have controlled them. And this oscillation is likely to go on, unless, indeed, it is possible, in the meantime, to enlist the consciousness and reason of men in the task of grasping and supervising the hidden forces of their natures; or unless some adequate substitutes for war are found which will provide an outlet for the powers and spirit of adventure of large groups of men. Neither of the two sets of influences now brought to bear on the side of peace,—namely, militarism on the one hand, and pacificism, on the other,—is likely, the writer thinks, to accomplish very much. The representatives of each of these tendencies unite in trying "to solve a delicate situation by a *tour de force*. The militarist sneers at diplomacy of any kind and seeks to adjust every difference by the sword, while the pacifist would change human nature by fiat."

The fact that in war men fall back upon their primitive instincts is obvious and well known. But less familiar is the further fact that every child brings into the world a greater or less amount of instinct for violence which in war is bound to show itself as a veritable blood-lust. This quality is very unequally developed and unequally converted into forces that work in behalf of civilization; but unless it is present or can be developed in some measure, the actual business of war, at least for the common soldier, is certain to become soon too loathsome for endurance.



Strangely enough, it is due to the peculiar mode of working out of man's gregariousness that the powerful inhibitions which society has come, gradually, to impose on this instinct for violence, on the part of the individual, are removed in case of war. For gregariousness makes men form nations, but nations are invariably rivals, and this rivalry is liable to become so intense that a trivial cause brings a new set of forces into play. Then the blood-lust comes to the front. The foreigner is not primarily hated, or even disliked, as such; often quite the contrary is true. But the moment war breaks out the foreigner "becomes a scapegoat for his race: he must be killed or injured in any possible way. If there is to be real war it is obvious that this second phase has to develop, for unless animosity of the race becomes individual, it would be impossible for a civilized man to deal a lethal blow, restrained as he is by the inhibitions of generations. Moreover, these inhibitions must be lifted to the point where killing gives satisfaction, else there will be a woeful lack of the enthusiasm necessary to outweigh personal sacrifice and sustain the war."

The marvelous scene which the author quotes from Shakespeare's "Julius Caesar," where Cinna becomes the object of mob fury because of his name, and although he is obviously the wrong person, is cited as a case in point.

MacCurdy quotes at considerable length from Freud's paper on "The Disillusionment of War," which has for its main thesis the doctrine that the primitive egoistic tendencies of every individual are the most "real" part of him, and that society is to be best understood by studying the metamorphoses which these instincts undergo.

These views of Freud are developed so concisely that it would be difficult to do them justice without citations of unreasonable length and I pass on to the point at which MacCurdy's views differ from Freud's. This is especially with reference to the relation of men to the social groups in which they live, and of these of different groups among themselves. Here, he thinks, Freud's individualistic studies are inadequate, and he quotes him as saying that he cannot readily explain "the hate existing between nations," and that "it seems as if the aggregation of men simply multiplied their primitive impulses."

"It is evident from the above that Freud views the atrocities of war as more natural than the civilized behaviour of man . . . This is equivalent to saying that the mystery to be solved is the behaviour of peace rather than the incidents of war."

Jones's attitude is similar to Freud's, and carries his argument in various respects a little further. Amongst other interesting propo-

sitions "he (Jones) deprecates any attempts to abolish war by forcible repression of primitive instincts . . . He suggests that it may be possible that the sublimating capacity of man is now at its greatest height . . . What he recommends is a more intelligent treatment of primitive instincts, the substitution of open-eyed study and control of social problems rather than blind legal negations which tend to increase social unrest."

"On the whole, therefore, we can sum up Jones' contribution as an effort to establish the violent, primitive instincts of man, usually unconscious, as an important, if not the primary, cause of war."

But Jones also, as MacCurdy justly says, fails to study adequately, or even mention, "the phenomenon of international hostility, the jealousy which is exhibited in times of peace." And it is with this important matter that the second portion of the essay deals.

"International rivalry is, apparently, never friendly; in fact, it seems to be invariably characterized by jealousy, often by bitterness." And no solutions of the difficulty are offered, except that it is "silly," or inevitable and of practical utility. In fact, a better solution is to be found through the study of the instinctive gregariousness of men and the constant interplay, as source of motive, between the dictates of this gregariousness and men's relatively individualistic opinions and desires.

"There is but one psychologist who has seen the potentiality of man's gregariousness. This is Wilfred Trotter."

This writer, who is by profession an English surgeon, attempts to explain many of the anomalies of man's conduct by pointing out that he has an instinct "to react with the herd" and is relatively "deaf to the voice of one without the herd."

"There are three great types of development in herd life: that of the animals who unite for aggression, as do wolves; that of the species like sheep, whose cohesion gives protection; and finally, the highest degree of gregariousness, which he terms the socialized type, exemplified in the society of ants, or better still by bees."

Trotter's first papers on this subject appeared in 1908, and his later book,\* valuable as it is, is marred, MacCurdy thinks, by the writer's strong prejudice against everything which is German. Nevertheless, the main propositions appear to him valuable and sound; and so far from contradicting the conclusions of psychoanalysis, they supplement them in an important way.

\*Science History of the Universe—Vol. VIII, Mathematics—Section on Mathematical Applications by Dr. Franz Bellerger—Current Literature Publishing Co., New York, 1909.

"One may say that psychoanalysis deals with individualistic motivation, while herd instinct is a study of social instinct."

Repression, he believes, is only one of the tasks of the instinctive repressing force by which it is brought about.

"The other task of this instinctive force is to augment the individualistic unconscious instinct when it is symbolized in a form that is socially acceptable. This is the essence of the dynamic structure of 'sublimation.'"

It would be unnecessary to analyze further the opinions which MacCurdy gives of the psychological trends represented by the work of these able men. His own contribution consists in the amplification of Trotter's views with reference to the social consciousness and its significance. As for the real dynamic value of the "sublimation" which in the eyes of Freud has been hitherto regarded as a somewhat passive or negative outcome, or by-product, of individual instincts acted on by repression, MacCurdy's views are such as have long been favored by the reviewer, and have been called attention to by him in different articles.

The reviewer would only urge that the argument presented might well be carried further. What are, in reality, these social, "gregarious," tendencies which Trotter regards as aboriginal and instinctive? What is their origin, their "sanction" and their scope? As one studies evolution, one finds, or seems to find, first, the individual, then, "society." But when "society" has become developed it takes a place even superior to that taken by its separate members.

Going further on this path (although in fact it is not the only path that one can follow) one finds individuals who transcend, in their development, even society,—in the same sense that a sentiment, say of "loyalty," transcends any group of men in whom the sentiment is exemplified. Is there not, then, a social "essence," or "generic energy," to which we owe a greater allegiance than even to society itself, and is not this what is, or should be, meant by "religion?" This brings in a problem of metaphysics, but the reviewer would urge that without a reference to metaphysics the full bearing, even of "physics" cannot be appreciated.

This argument cannot be properly developed here, and the practical point for the present moment, is, after all, as MacCurdy says, not so much the question, Do we want to abolish war, as the question, Do we want nations? For hitherto no ground of sufficient cohesiveness except war has been found that is adequate to weld together the units of which any large modern nation is composed.



"In the meantime, psychology can offer one ray of hope. Instincts triumph over reason, but largely because instincts act unconsciously. When man is so educated as to know himself and recognize the forces that are within him, he will be in a position to see the way his footsteps lead, and change his path—if he wills."

This interesting and hopeful doctrine rests, however, upon the supposition that reason must be regarded as supreme,—and one may justly ask is reason supreme? Must it not itself relate to what can be only classified as a moral intuition? And behind "society" as a physical group, is there not an ideal society which is rather to be classified as an "energy," which underlies, at once, the universe and man, and provides a bond of union between them, while it offers a goal for man's imagination and his constructive effort? Are we solely products of our evolutionary history taken in the usual sense? The reviewer thinks not and believes that just as society has inevitably a hold on us,—*i. e.*, just as gregariousness may be regarded as an instinct,—so, too, in view of the fact that our capacity for forming ideals is just as definite a part of us as any other, it may be said that an ideal society—*i. e.*, our ideals of moral right and wrong—can also make its claims upon us and inevitably does so.

JAMES J. PUTNAM, M. D

VOCATIONAL PSYCHOLOGY, ITS PROBLEMS AND METHODS. By H. L. Hollingworth. With a Chapter on the Vocational Aptitudes of Women by Leta Stetter Hollingworth. New York: D. Appleton & Company, 1917.

The author outlines the history of the various vocational efforts, beginning with those of primitive magic, and shows that the practices of medieval clairvoyance are far from extinct at the present time. The first scientific attempts at vocational guidance and selection are dated from the search for phrenological and physiognomic principles of diagnosing individuals, and considerable effort is devoted to their refutation on the basis of empirical and statistically treated data. The rapid progress in experimental psychology has led to the application of mental tests, the elaboration of graded intelligence scales, the establishment of norms of subnormality and normality, and the development of refined methods of mathematical treatment of experimental data, to the description of which the main part of the book is devoted.

One of the first methodical attempts to differentiate the various vocations from one another on the basis of special aptitudes and

characteristics is the method of the psychograph, which may be applied to the individual as well as to a vocation. The former is illustrated by a lengthy reference to E. Toulouse, examination of Zola, Dalou, and Henri Poincare, the latter by an instance from C. E. Seashore's study of professional musicians. The more specialized vocational tests and methods are divided into four groups, according as they employ the vocational miniature, the vocational sampling, the vocational analogy, and the haphazard substitution or selection of tests on the basis of empirically determined correlations of success or failure in certain tests with success or failure in certain occupations. A more recently developed method involves "self-analysis" and judgments or "consensus of opinion" of one's associates. Here the author offers some valuable original contributions of an experimental nature. The method consists, briefly, in having a number of closely associated individuals rank all members of the group, including themselves, in the order in which they are estimated to manifest higher or lower degrees of certain mental and moral characteristics. The scholastic career of an individual, if properly diagnosed and interpreted, may also offer some valuable facts as to his aptitudes, interests, and limits of further development. In the discussion of the problem: to what extent inter-correlations between mental tests revealed by preliminary trials are modified by continued practice in the tests, the author again has to offer some extensive experimental results of his own which lead him to distinguish sharply between temporary proficiency and ultimate capacity, and to propose a new program for future work in vocational psychology.

In the chapter on "The Vocational Aptitudes of Women," by Leta Stetter Hollingworth, this author establishes the fact that "scientific experiment has revealed no sex-difference in the original nature of intellect that would imply a necessary differentiation of vocations on the ground of sex." She also points out that "there exist no scientific data to show (1) differences in average intellect; (2) differences in mental variability; (3) special causes of intellectual inefficiency affecting one sex but not the other; (4) differences in affective or instinctive equipment, implying a natural division of labor."

The book closes with an Appendix containing a classified bibliography and a large variety of test-materials, sample blanks, standards and norms for various ages and activities, and forms for recording data. While the treatment of the subject-matter is concise, authentic, and conservative, the style is fluent and non-technical, and the book may

be highly recommended to all who seek a trustworthy and stimulating account of the recent progress in vocational psychology.

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THE UNMARRIED MOTHER: A STUDY OF FIVE HUNDRED CASES. By Percy Gamble Kammerer, St. Stephen's House, Boston. With an Introduction by William Healy, M. D., Judge Baker Foundation, Boston. Boston: Little, Brown & Co., 1918, 22x15 c. m.; pp. XV, 342. \$3.00 net.

"The Unmarried Mother" is the third volume in the series of Criminal Science Monographs, authorized by the American Institute of Criminal Law and Criminology, (the other two being Healy: "Pathological Lying, Accusation, and Swindling," and Gluck: "Studies in Forensic Psychiatry.") These monographs represent a phase of "abnormal psychology" never as yet too much, or even adequately, considered by medically trained psychologists. The question of the unmarried mother and her child, for example, is one of the most important social problems of the present day, and assuredly needs attention from those whose opinion might have weight—if expressed in the fitting places.

"Branded," as the advertisement says, "since civilization began, the illegitimate child is handicapped in life, even before birth; its chances of normal development are minimized, even its physical well-being is menaced, and it is obliged to bear an unfair burden. It is in the belief that enlightened public opinion may see fit to modify the community attitude towards the unmarried mother and her child that Mr. Kammerer has prepared his study of the situation. The statistics presented show only too plainly the futility of the present method of treating such cases, and the necessity of a different viewpoint from the average if this social evil is to be remedied." And Doctor Healy hits the key-note not of this book only, but of a pressing need of occidental society still suffering and in so many ways from the narrowness and the ignorance of the "Middle" Age:—"To prevent the disastrous stigmatization of the so-called illegitimate child or to prevent in the fullest possible measure this anomalous social phenomenon of illegitimacy, when nature and civilization are clearly at outs, we must inevitably turn to the deeper consideration of causes." The next particular decade or so, especially, when at last this war-weary world has crushed back the drive "on the road to yesterday," will value babies as even babies seldom so far have been valued; and we shall see in regard to legitimacy, perhaps even here in America, who knows?



we shall see—what we shall see. One thing modern equity and balanced kindness of common-sense certainly *must* attain:—the removal of reproach even in thought from the burden of the busy “stork;” for this child no more than the proudest infant of us all, asked to be crowded out into the doubtfully happy world. Whosoever the fault, it is not his, and this book will forcibly and scientifically remind the intelligent public of that needful fact.

Sixteen of the eighteen chapters discuss respectively these topics following: working methods; bad environment; bad companions; recreational disadvantages; educational disadvantages; bad home conditions; early sex experience; heredity; abnormal physical condition; sexual suggestibility; sexually suggestible by one individual; abnormal sexualism; mental conflict; assault, incest, and rape; mental abnormality; and the unmarried mother in various communities. There are conclusions, statistics, and legislative suggestions in abundance, and sixty-one literature-references of much value.

Probably between 30 and 40 per cent of the 500 cases summarized or studied (69) in this book has some kind or another of mental defect, thinks the author, and on this account, if on no other many “will see in illegitimacy but another instance of social maladaptation,” and “will realize that the solution of the problem lies through the individual.” Give the great and basal sex-question its necessary spiritual setting and make it common knowledge. And see that the children born evolve into good citizens.

Mr. Kammerer’s book lays due stress on the subconscious determinants of behavior and for this reason too is of much interest to the numerous readers of this JOURNAL. Doctor William Healy’s introduction is noteworthy.

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## ORIGINAL ARTICLES

### A CLINICAL STUDY OF A DREAM PERSONALITY

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**M**RS. B. a woman of 45, married, childless, came to me for treatment for nervousness, depression, headaches, sleeplessness, dreams, and general indisposition, both physical and mental. She is going through her menopause period. Her physician who sent her to me ascribed her condition entirely to her physiological state of menopause. The condition was however far more complicated, and on examination was found to be more psychological in character. A psychognostic study of the case revealed some interesting undercurrent going on all along in her subconscious dream life. A rich dreamy under life akin to a secondary personality was discovered in her subconsciousness. This subconscious dream activity protruded its tentacles into the patient's waking life, and gave rise to many of the symptoms from which she suffered so acutely, without her, however, ever being aware that she had formed a parasitic personality which was gradually growing, consuming and paralyzing her life activity.

This ill formed, unshapely, subconscious secondary personality was of a chaotic character, mainly consisting of lapsed sensations, perceptions, feelings, emotions, actions long gone by, and generally of outlived events, impressions, and experiences long dead and buried. The secondary parasitic personality was formed out of the debris of her old self. The struggles, fears, and disappointments of her early life mainly crowded the gloom of her dream life. The dreams were a *recurrence of her former*,

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*outlived experiences reproduced in a highly fragmentary, disconnected, and chaotic way.*

The patient reached a critical period in her life. Without any occupation, without the development of the maternal instinct and all the intensity of affection and activities that go along with it, without any specially formed interests the patient fell back on herself. The instinct of self-preservation, the most fundamental of all animal instincts, became predominant. Along with it became awakened that terrible monster, the instinct which forms the basis of all psychopathic maladies,—the fear instinct. The patient was obsessed with the fear of becoming old, ungainly, stout, and ugly. She suffered from apprehensiveness as to her age, looks, and appearance. As a matter of fact she did not look well, her features were rather large and homely. She was divorced from her first husband, and was afraid of losing her second husband. This weighed on her mind since her girlhood. She met with many rebuffs in society, and was very sensitive about her homeliness. She always suspected and feared that people disregarded her on account of her looks. She had fears about her health, she looked sickly, cachectic, and ugly. She had fears that she had lost all her abilities, was worthless. Her apprehensive moods colored her all being, became subconscious and was diffused throughout her dream activities.

In my work "The Causation" I have pointed out the Principle of Diffusion by which the fear instinct spreads throughout the organization of mental systems. This is what has taken place in the patient. Along with it the patient's experiences have become of an apprehensive mood. The affective tone of mental life has become one of fear, distrust, and suspicion. The ideas, images, representations, and dreams were of a gloomy, scaring, and apprehensive character, such as of evil agencies, snakes, tigers, and monsters of which she had read or had seen in pictures. She formed the fear that her friends did not care for her, that she was going to lose her friends and relatives, that she was going to lose her husband who, she thought, did not care for her on account of her defects and her stupidity, lack of abilities, and especially on account of her ugliness. Life became a burden to her. She began to brood about her troubles, her deficiencies, her fears. She became extremely self-centred, did not care for anyone but self, talked only of herself, of her anxiety, of fear and self. The fear became often so intense that she felt like committing suicide, and then she was afraid of any sharp objects,



such as axes and knives; she was afraid of committing some crime.

After long questioning I could not obtain more than the bare account of dreams dating from her early childhood,—she dreams of endless walking and of great fatigue. She also dreams of being in a rowboat which turns round and round. Then she dreams of being in a cave the overhanging ceiling of which crushes her. This is all she could remember. When she wakes up she often does not know where she is. Sometimes on such occasion she has visual hallucinations, she feels and sees someone bending over her. Her life is like a maze, like a labyrinth. She realizes those impassable, thorny and stony life roads, full of danger and suffering, in her day experiences, recurring with great intensity, complexity of detail, and addition of local and emotional coloring in the subconscious activities of her dream-consciousness.

The dream activities kept on repeating themselves, giving rise to dreams having similar and even the same content, but slightly differing in the manner of association, or in form and structure of combination of elements, like various compositions on the same fundamental motive. The patient was of a highly artistic temperament, imaginative, and of a brooding disposition. The variations in the combinations of the associative systems and their elements could be almost infinite, and still the fundamental ideas or themes were quite limited in number. With all the rich endowment of waking and subwaking subconscious activities characteristic of the patient's mental life the poverty of the fundamental or *base-dreams* was quite marked, and could be reduced to less than a dozen for a period of many years, in fact for almost a whole life time. There were many variants of substantially the same dream, so much so that one could easily foretell in the beginning the whole trend of the dream. *The organized dream systems recurred in an automatic way as reflex reactions in response to the same or similar conditions of external and internal stimulations in the same way as the conditional reflexes in Pavlov's dogs.*

In "The Causation and Treatment of Psychopathic Diseases" I lay stress, as in my previous works, on the recurrence of the psychophysiological functioning of mental systems, or of the total moment of consciousness, described as the recurrent moment-consciousness, based on recurrence of psychophysiological reflexes, present in animals and man. I think it best to quote from my last works on the subject:

"In psychopathic affections the disturbance consists in the formation of non-adaptive associations of central neuron-systems with receptors which normally do not have as their terminal response the particular (appropriate) motor and glandular reactions.

"In Pavlov's experiments the flow of saliva or of gastric juice in the dog with the fistula could be brought about by associations with blue light, with the sound of a whistle, by a tickle, or scratch, or by various diagrams, squares, circles, as in the experiments of Dr. Orbeli. What holds true in the case of conditional reflexes in regard to saliva and gastric juice also holds true of other conditional reflexes formed by psychopathies. The mechanism in psychopathies is the same which Pavlov and his disciples employ in the formation of various conditional reflexes in the case of dogs. All kinds of abnormal reactions of a morbid character may thus be formed in response to ordinary stimuli of life.

"Emotions are specially subject to associations of a morbid or psychopathological character. The physiological effects of emotions may be linked by associative processes with ideas, percepts, and sensations which are ordinarily either indifferent, or give rise to reactions and physiological effects of a type opposite to that of the normal.

"The reactions of muscle and gland are like so many electric bells which by various connections and combinations may be made to ring from any sensory button or receptor, as Sherrington would put it. An object, however harmless, may become associated with reactions of fear, anguish, and distress. This holds true not only of man, but also of the life of all lower animals.

"Associations and reactions, motor, circulatory, glandular, however abnormal, formed by young animals, persist through life. This holds specially true of the higher and more sensitive animal organisms, such as the mammals. All training and formation of peculiar reactions, such as various tricks, habits, scare-habits (fear-psychoses), scare-pain reflexes depend entirely on this plasticity of the nervous system to form new associations, or as Pavlov and his school put it, to form *conditional reflexes* and *inhibitions* in regard to glandular secretions, and in fact to all other psychophysiological reactions.

"Psychopathies are essentially pathological affections of associative life. Psychopathic maladies are the formation of

abnormal, morbid, 'conditional reflexes' and of 'inhibitions' of reactions of associative normal life activity.

"What we find on examination of the psychogenesis of psychopathic cases is the presence of the fear instinct based on self-preservation, which becomes associated with some fundamental interest of life. The interest may be physical in regard to bodily functions, sexual, social; it may be one of life ambitions; or it may be of a general character, referring to the loss of personality, or even to the loss of mind. The fear instinct, based on self-preservation, may become by cultivation highly specialized, and associated with normally indifferent objects, giving rise to various phobias, such as astrophobia, agoraphobia, claustrophobia, erythrophobia, aicmophobia, and other phobias, according to the objects with which the fear instinct becomes associated. Objects, however indifferent and even pleasant, may by association arouse the fear instinct, and give rise to morbid states, like the "conditional reflexes" in Pavlov's animals . . .

"Events and situations with fixed sensory stimuli, when repeated, *fix* the neurosis, very much in the same way as are 'the conditional reflexes' in Pavlov's experiments. Other sets of stimuli of an ideational character are transient in duration, while the general apprehensive, subconscious condition persists unchanged, seizing again and again on ever new objects and thoughts, forming psychic compounds of various degrees of stability."

Such was the condition found in the patient. Well organized, stable mental systems were formed, and kept on recurring and reacting in a reflex character in response to external and internal stimulations. Mental systems became organized as highly complicated "conditional reflexes."

Perhaps a word may be here appropriate as to dream-symbolization, so much enlarged upon by writers on the subject of dream consciousness. Nothing of dream symbolism was observed by me in this case as well as in other cases in which dream activities were prominent. Dreams are found by me to be automatic, non-adaptive, mental systems, recurring under various forms as highly complex conditional reflexes, lacking adjustment to the present world of external and internal reality. In all the experiments and cases, investigated by me, the nucleus of the dream content is some recurring experience of actual life which, on account of its emotional intensity, has become a well es-



established fixed system. *The symbolization is uniformly supplied to the patient by the physician himself. Dream-symbolism is a psychopathological artefact.* No less of an artefact is the searching and finding some hidden meaning and wish in dreams which, by their nature, belong essentially to non-adaptive reactions referring to a past, now dead and gone.<sup>1</sup>

On May 21, 1910, patient was put into hypnoidal state. In this state she was asked to give an account of her dreams. "I know I dream something, but I cannot remember what it is. I sometimes wake up in a fright, but I cannot remember." Patient was then put into hypnosis. She went into a deep state verging on somnambulism. When asked again as to her dreams "Ugly faces are coming up." Patient could not see anything else, the ugly faces rising from the obscure subconscious regions seemed to have inhibited all other content from rising to the periphery of consciousness. The patient was then awakened.

On May 23, patient was put again into a hypnotic state. The ugly faces did not seem to trouble her, she was freer in her account of the dreams. "As soon as it is dark I fear that some one wants to kill me. When I wake up I feel great strain [patient shudders, and complains of pains in the back]. The dreams come up in spurts, so to say, at irregular intervals." "Those ugly faces, those evil eyes come to me. I see them now. I see them in my sleep. I am afraid to go to sleep. I have a feeling that something evil will happen."

"When a young girl I was regarded as a medium. I fainted when a man who wanted to mesmerize me, put my hand on a table. Once in going into another room I was suddenly stopped. I stood in the middle of the room and could not move. I was paralyzed by that man, a spiritualist. It took time to get out of that condition. I was so frightened. This spiritualist said that the right side of my body did not respond as well as the left. I have trouble in my right side, have enlargement of right hip, have pain in my right arm. I have often presentiments which come to pass true. My headaches come from my dreams."

The patient became restless, she was quieted, and she was asked to tell the dream she had last night. While trying to remember the patient has motor disturbances, she shudders suddenly and starts almost jumping at the least noise, and often seemingly without any occasion. There are marked disturbances

<sup>1</sup> I shall devote a special study to the psychology of dreams in a separate monograph.

in her respiration. She seems to live the dreams over again.

"Long ago I dreamt that I had a fall in an elevator—run by a woman—I was killed—I am afraid of elevators since then—It just came to me—never remembered it before." Patient became restless, she was quieted.

An attempt was made to get some more dreams out of the dreamy regions of her subconsciousness. Patient became very restless, "very nervous" as she put it. Her face was flushed, her features were drawn, and the corners of the mouth began to twitch. When I asked what the trouble was with her, she said: "Nothing, it is nothing—I am nervous—I am scared, afraid"—She was again quieted, and was put into a deeper state of hypnosis. "I am afraid to go to bed, I do not like the coming of night—I see darkness—I see lots of people—They are around me—very close—they want to kill me—they are groping in the dark for me—I feel them watch me—I have dreamt it many times—I think I have had this dream during the last six years—I see their eyes shining in the dark—I am in a dark cave, the place is low and overhanging, presses me, crushes me.—Some one wants to hurt me—My sister is with me—My sister is not in danger—she is not afraid—I told her to come and help me at a signal, but she did not give the signal and the fear woke me up."

Patient is afraid of lightning. She was struck by lightning a few years ago. Since then patient is very much afraid when a storm is approaching.

May 26, patient came to the laboratory and said she felt well and was not in the least afraid when a storm came. On the whole she feels well, feels young again. The night of May 24, the day she was here, she felt well and slept well for the first time. The next night she slept well, but there was active dreaming. The day before there were two electric storms, but she had no fear whatever. Mr. B., the patient's husband, confirms Mrs B's account.

Patient dreamt, but did not remember anything. Patient was then put by me in a hypnotic state. In hypnosis she dreamt that Mr. B. hurt her in one spot on her spine. The pain was very intense. On awakening patient still had a sensitive spot. It was insisted that patient will feel well and feel stronger, more energetic than before, and that the feeling of illness would disappear.

Patient also dreams that she is in a boat which is going round and round, a dream which she often has, and which dis-

tresses her much, she is dizzy on awakening. The day before patient also had hallucination of a figure. She could not see through the figure. It gave her a shock. The vision lasted but a few seconds. She felt its presence first, then she turned round and saw it. It was a human figure, but she did not know whether it was man or woman. The figure was dark and surrounded by darkness so that she could not notice details. She always sees the vision in the same way. Patient also had an auditory hallucination the day before. She heard a voice calling her by name. She saw no figure then. *The figure she sees is like the veiled figures she sees in her dreams.* The visual hallucination dates some eight years back. The hallucination began with visions of figures of animals crowding round her, then instead of the animals the human figure began to appear. The figure does not come up to her, makes no attempt to talk to her, and patient is not afraid, because the figure appears in broad daylight. The appearance of the vision has no relation to her states of depression or to the attacks of headaches, it appears even when she feels well and happy.

After some time other dreams began to appear. Patient dreamt of seeing a multitude of snakes<sup>2</sup>—Was greatly frightened—Saw them killing a man.—Tried to get him away but did not succeed. Was horrified. Patient was given suggestions of euphoria and then awakened. Patient says she feels much better after she leaves this place. She is quiet and feels very happy. Before she used to avoid company, but now she even ventures to visit people.

On May 28, she came complaining that she slept very badly the two nights and dreamt a great deal, but did not remember what it was. "My head felt as if pressed together, woke up with severe pain in the head. The headache still persisted."

<sup>2</sup>In the experience of humanity the snake is a special object of fear as evidenced in various religions and superstitions.

The great anthropologist, Frazer, refers to the worship of poisonous snakes and serpents by primitive tribes due to fear. As W. Robertson Smith puts it: "Certain kinds of them (*Jinns* demons) frequent trees and even human habitations, and *these were identified with the serpents which appear and disappear so mysteriously about walls and the roots of trees.*" In another place Robertson Smith lays special stress on the fear aspect of snakes long persisting in the consciousness of mankind: "Ultimately the only animals directly and constantly identified with the *Jinn* were snakes and other noxious creeping things. It is natural enough that these creatures of which men have a peculiar horror and which continue to haunt and molest human habitations after wild beasts have been driven out into the desert, should be the last to be stripped of their natural character. *The snake is an object of superstition in all countries.*" . . . Wild beasts in caves, snakes, serpents, the fear of which goes back into the sub-human stages of man-like apes and ape-like man, keep on terrorizing man as *jinn*s and demons, long persisting in the subconsciousness and the dream-consciousness.



Patient was put into hypnotic state. The headache was gone. "I feel very happy, sometimes like when I was 18—Early this morning I saw the figure—just after the dream." Patient could not recollect the dream. She complains of sensation of emptiness in the head, must make some efforts to recollect the dreams. Patient's mood changes, she is not discouraged; does not answer questions. Keeps putting hands up to the face, rubbing her eyes, attempting to open them. After a long pause patient exclaims: "I don't like myself, don't like anything about myself." When asked the reason she answered: "I don't know." Patient cries, is very restless, rubs her eyes ceaselessly, and is greatly disturbed; appears to be deeply depressed. After a few minutes patient said: "I could never be what I was meant to be. I meant to be a musician, and I had to give it up. I had to, on account of my first husband. It is impossible for me to play now. I have not played for 14 years." There is little doubt that the unfortunate marriage with her first husband so deeply affected the patient's life that her present condition is largely due to that source. While in the hypnotic state I insisted that the patient should get a piano and begin to practice so as to overcome her long standing repugnance to music. The principal thing being that she has lack of confidence in herself, and fears she has lost all her abilities and energy, and is fit for nothing. Along with it is associated the fear that her troubles caused her to lose so much time that now she is getting old, her face ugly and roughened. She has no confidence, obsessed by fear, and when she does play she is afraid someone may hear her. The piano playing and its practice was thus insisted on, and with a suggestion of well-being the patient was awakened from the hypnotic state. There was complete amnesia of what had taken place in hypnosis. Patient complained of headache.

Patient came July 6. She was greatly depressed, had many attacks of bad dreams, but had no recollection of them. She could not bring herself to play the piano. She feels as if there is another self in her as "if two selves are struggling in her." She thinks that her old self is dead; this distresses her very much. In the hypnotic state she is upset and cries much. I made her promise that she would get a piano and begin to practice. On awakening she felt much better.

On June 12, patient came again in a depressed state. She did get a piano and attempted to practice. She dreamed

much and as usual did not remember the content of the dreams. On the whole, she claimed she felt worse than she had ever felt before. Her life, her former self which she regarded as dead began to move in her, she felt distressed.

Patient was put into hypnosis. She was then asked to tell the dreams she had. "I was running away from something—I know there were people—saw ugly faces—same that I see here.—I always see these faces in my dreams and I am afraid of them.—It is 24 years since I have begun to see these faces. It is since the time I have begun to be unhappy. The faces are like those of my first husband. I see the faces *asleep and awake*. I do not see them when I start to play." "I am afraid of people because I have no confidence in myself." It was then suggested that she should play, that it would do her good and that the faces will become pleasant.

Next day when patient came the faces still persisted in coming to her. In the course of the questions while patient was in hypnotic state, she told me that when young she had a very ugly teacher, the faces look like him and also like that of the former husband,—the faces seem to have blended. She kept on practicing on the piano and was getting on well. It seemed as if the old life was returning to her. She still saw the veiled figure coming to her, though she was not afraid of it. She sees the figure and sometimes feels its presence, but when she turns round the figure disappears. It was then suggested to her that she would sleep well and have no dreams whatever.

There is one thing that is now gradually developing and that is the influence of S.'s personality. She needs his support and influence, and is afraid that she might lose it, that she would not be of any interest after the study of her case. She seems to need a director, she lost her former personality, and lost along with it all will power to direct and control her life. S. had to promise her that he will put her in a condition in which she will be able to control her own fate. Last night she had a headache, slept badly and felt depressed when she woke up. She feels better now in the hypnotic state. Patient says that she begins to get some comfort from her practice and play on the piano. It was then again suggested to her that she should keep up her play, and was then awakened.

When patient came next day she told me that she felt sleepy and heavy on going home. She had no memory as to what had taken place in hypnosis. In fact she could not even

tell how she got home. It seemed that the hypnotic state persisted after the apparent awakening. Nothing more could be obtained of her when put into hypnoidal state. After a few minutes she said "I feel now sleepy and tired." When put into hypnotic state and asked about the dreams she had the night before, patient at first said she could not remember, but after a few moments the dream came back in a rather vague form. "It was dark." The hypnotic state was then deepened. The dream came back in a clear form. "I was on a boat going around." She then became greatly excited. The memory became very vivid. *The experience ceased in fact to be a memory and became semi-hallucinatory.* She began to live over the dream experience in her hypnotic state. She was like one frightened and cried "There were many people—I was afraid—there was a big wheel—I was on that wheel—I was very much afraid—I was shipwrecked once. It was on the middle of the ocean—13 years ago—Since then I dream of boats." Patient's husband confirmed this fact of shipwreck which left a deep after-effect on the patient's life and dream activities.

In the next hypnosis on the 17th, patient was in far better spirits. The subconsciously organized systems troubling the patient in the form of dreams and hallucinations, causing her dullness, headache, and making her unfit to fix the attention on anything, as well as depriving her of her memory, all these parasitic systems were gradually giving way. Patient told me when in hypnosis that she dreamt she saw me, and that I was going to clear her brain. She felt well during the day and played piano for two hours which was not usual with her. On the whole she feels much better in her mind, "is able to read, understands what she reads, and is even able to remember what she had read." Suggestion of euphoria was given to her, and then she was awakened. There is difficulty in arousing her from the trance state, she passes gradually from the trance state into the waking state, and sometimes the tendency is to persist in it, special insistence is requisite to keep her awake.

The day after patient came in a state of great mental depression. She had some dreams about carriages, boats, hills, and accidents. Could not remember any details.

Patient was then put into hypnosis, and was asked to describe the dreams in detail: "Yesterday I felt better up to 8 o'clock in the evening; then I felt restless and depressed—did not know why." The hypnotic state was then intensified and



deepened. Patient sighs and is getting more and more restless. She was asked the cause of the depression and she again answered she did not know. "Melancholy came over me." Soon she became very restless giving rise to starts and jumps in her hypnotic state. When asked why she started so violently, patient said: "Something entered my mind, it comes of itself." Insistence upon deeper sleep and also on her telling the cause of the excitement and why the unaccountable onset of depression. Patient refuses to tell, says it comes from her nature. "Feeling by itself," thinks she has been born with it. Even in the happy day of her "young life" she had these onsets of sadness and depression. Further insistence makes patient irritable and restless. She repeats the same thing that the depression sets on suddenly. Patient was awakened with suggestion of euphoria.

Next day patient came, complaining of having passed a bad night, had a bad headache and felt great depression. Patient was put into the state of hypnosis and asked the cause of the headache. The depression, a feeling of heaviness came in the evening about 8 o'clock. "What were the ideas that entered your mind at that time?" "I felt like injuring myself." While remaining quiet in the hypnotic state for several moments patient suddenly exclaimed "Strange, horrible eyes—I see them again." Patient became excited, tossed about and moaned. I insisted that the faces were only pictures but no realities, and that she should not be afraid. After a few minutes patient became quiet. I suggested to her that she could see the faces clear and distinct, that they were images, that they would cease to trouble her. Nothing further could be obtained of the patient, she was brought out of hypnosis as usual with a suggestion of euphoria.

When the patient came next day she told me that she slept better, and that she had no dreams, that she played on the piano, but in a listless way.

Patient was put into hypnosis. Asked whether she dreamt she replied without hesitation that she dreamt, but that she could not remember what it was about. I insisted she should tell me the content, but nothing could be obtained. After much insistence patient suddenly said that it was not a dream. "It is something that comes over me—since childhood—something big, colossal—frightens me. I cannot recall how it came the first time. It is not at all like a dream. It appears so real—I see it and feel it.—It comes when I am nervous—I am greatly

frightened when it comes." At the end of the hypnotic state patient suddenly said in that dreamy abstracted way characteristic of hypnosis "I am going to be happier." Awakened with suggestion of euphoria, and also with the suggestion that she would have no distressing dreams.

On June 21, patient told of the content of a dream about boats, of being on the point of drowning, and then rescued. This was the same dream which recurred so often in the patient's dream consciousness, and which was traced to the actual experience and shock of the shipwreck in the middle of the ocean.

For the first time patient confessed frankly of the insistent ideas of suicide and homicide. These insistent ideas torment her. Patient is possessed by the idea of killing her husband, and of attempting suicide by jumping out of the window. Sometimes she has an irresistible impulse of assailing people, especially such that are near to her. Patient suffers greatly from these almost irresistible ideas which are so insistent occasionally that she seems almost to lose control over herself. She is sure she will not follow the impulse. The very idea of it is repugnant to her, but she cannot rid herself of the idea.

For a couple of days the suggestion of euphoria seemed to have taken some effect, but afterwards the dreams of darkness, of the ugly faces, of the climbing and clambering all kinds of impassable roads recurred. Once the dream was so terrifying that she awoke with a scream and implored her husband to stay near her. She did not remember the content of the dream. When put into hypnosis, she began to sigh, to shudder, finally said she felt as if she fell out through the window. Dreamt she was near the window and fell out. She does not remember to have cried out, but on awakening she remembered she asked her husband not to leave her. Suddenly patient sat up and exclaimed "I feel a choking as I felt last night." Patient was living over the experiences of the night before. "It was dark, I did not know where I was—and I fell out of the window." It is quite probable that the suicidal ideas have strengthened the dream consciousness. The psychognosis was given to the patient while she was in the hypnotic state. Moral fortitude was insisted upon. The patient was then awakened and felt well. There was partial memory of the hypnotic state.

The day after she complained of depression. In hypnosis she described a dream of the shipwreck which she experienced

again in her dream state. It was this that upset her. She felt better on waking.

Patient came 30th of June, said she felt better, but that the dreams were as active as before. She could not remember the contents. The patient was put into hypnosis. It appeared that the night before she dreamt of seeing a man attacking another, attempting to kill him. This dream referred to an actual experience in the patient's life, an experience which greatly affected her, gave her such a shock as to impress deeply her subconsciousness and furnish afterwards material for dreams for a long time to come. This dream terrified her. A little later in the night she had another dream related to the first, but this time even more distressing, it related to her own brother about whom she worried so much lately. The brother had some family troubles. He wanted to kill his wife. "I see it now. He got hold of her and choked her. I tried to push her behind me so that he could not reach her." The dreams emerged with great difficulty, and came up in fragments. "I saw him—he was angry—he said nothing.—Then the whole thing came.—There is a young girl.—I never saw her, but I know her—he came up to her, to his wife, and attempted to choke her." Patient was brought out of hypnosis and as usual euphoria suggested.

For a few days the patient felt somewhat better, though the dreams did not stop, but they were of a rather trivial character, and did not trouble her much. The dream-consciousness was so highly developed in the patient that its activity could not be suppressed. This highly developed dream-consciousness formed a parasitic secondary personality.

Patient told me that she was greatly frightened by a black cat which came near her and then seemingly wanted to jump on her breast. In hypnosis patient said that since her childhood she was afraid of cats, especially of black cats. She does not remember that a cat ever attacked her when a child. As patient goes into deeper hypnosis she complains that she still sees the cat, a big cat. She does not remember when she first began to dream of cats. She has hallucinations of cats, but the hallucinations are of a rather peculiar character. While they seem to be of a visual nature she does not see them, but she feels them as if she sees them (a pseudo-hallucination). After a long effort patient reminded herself that when very young she was frightened by a cat that jumped on her shoulder. "I remember



a cat got under my bed—I chased it and the cat turned on me.” While in the hypnotic state patient is restless. “It seems to me I see now the cats—I went for something into the kitchen—It was dark—the eyes shine—I see myself a child twelve years old—I was so frightened—I ran.—I have dreamt of them since—in my dreams I have seen many animals—then I used to see those animals at daytime—they were all around me—have seen many of them.” Patient awakened, suggestion of euphoria given her.

For a couple of days patient was comparatively quiet; her dreams were not distressing, but the incessant activity went on as before,—it could not be suppressed. The dreams were of the ordinary type of current life, but they were now and then tinged by an unpleasant affective mood, characteristic of the subconscious parasitic systems.

On July 3, patient was put into hypnosis, and again a dream came up. She dreamt that she slept in a very high building. The bed was near the window, and she was afraid that she might fall out of the window. This is a dream which comes to the patient in different forms. It seems also to form the basis of her suicidal insistent ideas. “I saw a man—an old man—I can see him now very clearly.—His eyes follow me—has grey beard—very dirty.” When asked whether she knew him, whether she ever met him before, she at first answered in the negative, but soon after said: “Yes—some years ago a man like him followed me—early evening—I did not like it—he was looking at me—I ran into the neighbouring store—then he was gone”.

“It seemed to me I was in a cave—there were many women dressed alike and I was dressed the same—I thought we were all lunatics”. She is afraid to stay in rooms with low ceilings, a sort of clausterphobia. The patient continued: “It is all dark—I see some rocks—trees and some shrubs—it is a small cave—I cannot stand up in it—The ceiling is too low. I have the feeling as if some things come down on the head. I have been in such caves near Niagara Falls.” The patient then stopped for a few moments. Suddenly she gave a start and jumped as if in great fright. When asked what she saw, she replied in some excitement: “Felt just like waves going over my head—in the ship—we are going to get drowned—it is a storm—” This trance hallucination disappeared. Patient returned again to the dreams of the cave. “It was about eight years ago

that I first began to dream about caves. I was very ill at that time—suffered from malaria. I dreamt, it seemed to me in my imagination (possibly in delirium) that the ceiling came down over my head. I was so frightened.” After this the patient was awakened. It was insisted she should have pleasant dreams. On coming out of hypnosis she felt well and cheerful.

I tried my best to insist that she should remember the dreams in her waking state, and at the same time attempted by conversations to strengthen her both in the hypnotic and waking conditions. The patient was awakened and felt much better. The depression disappeared.

A few days later patient told me in hypnotic state that she thought she was dead, that her real self, what she was and what she was to be, was dead, that she felt sometimes like making away with herself,—life was not worth while living. Now and then the idea gets possession of her to jump out of the window, she thought many times of it, but she really would not carry it out. The suggestion given to her was to the effect of revival of her former ambition and of her former self, that not all was dead, that her good old self, apparently dead, will come to life again, that she must not despair and give up things without any hope.

Patient also told me that she was afraid to come to the laboratory, that she could not account for the fear, but that something seems to compel her to go against her will. She is sometimes frightened at the changes that suddenly come over her, appear to sweep over her. She sometimes feels suddenly that she is a new person, that others notice it.

The patient then for a couple of weeks felt well, as if she were a different person, the same as she has been when young. The dream activity did not abate, however, but the dreams seem to have been of a disconnected character. On July 8, however, the dream consciousness began to weave again the dream experiences which so affected the patient's life. The patient in her waking state could not remember the dream. She knew that she dreamt, but the details and even the general character of the dream could not be recalled. Patient appears to be quiet, but by no means cheerful. She was then put into hypnosis. During hypnotization there were slight twitchings and deep, rapid respiration. When asked whether she still was afraid to come to the laboratory patient answered in the negative. Patient was then asked of the dreams of last night. As she

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appeared to live the dreams over again, and that in a vivid visual form, she was asked the question: "What do you see?" "A garden—it is very dark—I cannot get in—I want to—" —"Where?"—"I do not know—Very dark—the tree grows over—I hear voices—I cannot get in—there is a big fence all around it." After a few moments patient became rather quiet, only slight, occasional motor reactions. "I am inside now—I am walking down one of those dark alleys—There is somebody there I do not know who—it is dark—I hear voices—I hear whispering—I am afraid to go there.—They are waiting for me—I want to go away—" Suggestion: "listen well."—Patient shudders in fright, jumps—"I do not want to—can't hear a word—they talk together—they whisper." Patient became quiet. "Where are you now?" "I do not see anything now—" After a few moments—"I am in a house—my sister—house very simple, nothing in the house—don't talk to me—" The patient came out of this state. A little later she went on saying: "It is going—something happened to me, but I do not know what—did I do anything wrong? I feel as if there were something in me, struggling—trying to get out—(puts hand on chest) as if there were two inside of me. I have done something in a dream last night—it was my sister I tried—in the same house—I choked her—it seems to me I am choking her. I am wicked." Patient became excited and cried, her face became flushed. She was quieted and became composed.

On the 9th, patient came again, and again the dream consciousness was at work, developing its fantastic combinations.

In hypnosis patient said: "I see the figures—they are just moving around me—I want to see their faces—cannot—, (respiration rapid)—they are very tall; it is evening—two figures—they are crowding on me—skeletons!—in a church yard—white faces—like the faces I saw before—I can't run away—everything goes round—(Patient, as if dizzy, and frightened). I am still in the church—red brick—tower—I can see the bell—several side buildings—high hedges" "Have you been there before?" "Yes, not long ago, last year in the village W., I remember walking there with Miss F." Patient then became quiet; no further dreams could be obtained. Patient complained of fatigue. She felt in company that she could not well attend to conversations, that she could not hear well what was spoken to her. Suggestion feeling well, no dreams, no fatigue. Awakened, patient feeling well.



The patient came two days later, and as usual the suggestion had no effect; the dream activity went on as before. The patient was nervous and upset in consequence. When put into hypnosis, patient is restless, jerks her arms, shivers, and at times jumps violently. Patient holds hand up expectantly, as if something is coming. "Big flat country—no trees—(sighs)—it hurts my head—stones, fields—I have to walk along—it hurts my feet—I fall—(sighs, moans)flies all over me (keeps on brushing her face)—they are ugly—Some one calls me to go on—but I can't go—the stones are so hard and sharp—(keeps on brushing flies from face) it is my sister—I can see her a long way off—I can hear her—flies—(brushes her face)—yes, twilight.—Sister does not want to come to me. I walk straight ahead. Nothing but stones and water—fields, ditches between the fields—." Here patient relapsed into silence. She does not brush her face with her hand, as if to drive away flies. Starts violently, jumps, throws up hands: "It is some dark place (respiration very rapid) I think I am dead—I can see myself though I am on the ground—arm, leg drawn up—head hurts—(breathes hard—)" Nothing more could be obtained, patient was awakened. Patient was then put again into hypnosis. She is quiet. "I feel something in my head."—What do you see now?—"Darkness—all dark—(starts)—I feel myself way down—I hear people—all about me—(Jumps up from couch in great terror) A snake! (face flushed. Respiration rapid)—I just saw its head—" Patient was quietened, and brought out of hypnosis. Suggestions of euphoria.

Two days later, July 14, patient came saying she kept on dreaming, could not recollect the content. In hypnosis she told me that she dreamt of the cat jumping at her. She also had another dream which seemed to have affected her more. She dreamt she saw her mother who was trying to cheer her up. She was somewhat depressed the day after, but felt better in the afternoon.

When patient came next she referred again to her hallucinatory experiences, and I found out that she had at different times a number of them of similar character. In hypnosis patient told me she had dreams. From the hypnotic state she gradually passed into the hallucinatory, hypnoidic state in which she lived the dream experience over again. Patient becomes restless, respiration rapid. "A cat, a nasty cat—brown back—it has an ugly face—but it looks more like a human face—I see

a big square house—lights in the garden—I stay outside in the garden—near the water—somebody pulling me—got away (frightened)—I am down on the ground and rolling away.” Gradually another dream came to the surface. A dream referring to the day before.

“Mother sitting near a table, her head bent down on her arms. I am kneeling down trying to cheer her—my dead sister sitting behind me. When suddenly I see myself in her.” Patient was then awakened.

The day after she told in hypnosis about dreams, of boats, of people and of shadows following her. This last feature of dreams could be traced back to her first husband who tracked her in her coming and going. She had great difficulty in ridding herself of him. When patient came out of her hypnotic state, she could not remember the experiences she had gone through. Gradually, by effort, and by insistence did the experiences emerge in fragments from the depths of the subconscious in which they were seemingly buried. It was easier for her to have the subconscious experiences recovered with her eyes shut than with her eyes open.

On July 21 patient was put into hypnosis and while passing through the dream experiences pneumographic tracings were taken of her. Patient dreamt of something shapeless following her, then taking the shape of a human face, and then of some animal, attempting to attack her. She was terrified. “Something choked me, and I then woke up.” The night before she dreamt she was travelling, “I am always travelling in my dreams.” The day before she felt depressed, put out by some trifles.

On July 24 there were dreams as usual, dreams which the patient could not recall. In hypnosis she told me that my assistant appeared to her in the dream, and insisted that she should write a letter in which she should state that she was very sick. She refused to comply, but finally she was forced to do it. She also saw me in her dream and I charged her with frivolity and that I did not want to have any thing to do with her. At the same time the dreams began to take a somewhat different character, they were not so unpleasant and they were more of a commonplace character, referring to her everyday experience. She complained that occasionally a feeling came over her, as if she had done something evil, and she felt depressed, but this feeling soon passed off.

On 25th of July patient came to the laboratory. She felt well, played on the piano and enjoyed it, she could read, could remember the reading, and took an interest in it. The dream life was still active, but it was not unpleasant. She told me she felt better than she had ever felt before. I then tested her visual hallucinations by making her gaze into an illuminated surface. A glass of water was put on a white surface, and a light was made to shine through the water. The patient fixed her attention on the water. Gradually objects and even whole scenes began to develop, and she began to describe them as they emerged one after another: "I see the door step—it is gone now—I was sitting on last night—see two women in light dresses—it is gone—see the corner of the street—(rubs her eyes)—I see a bed—it is gone—it makes me sleepy—(shades eyes from light). I see some shadow of a man walking over a field—there is a lake—it is very pretty though—I see myself sitting—high above the water—on the other side there is a big house. In front there is a fountain and bush (stops looking) I cannot see any more, my eyes ache; the lake is so shiny." After a few minutes she was asked to look again. In a few moments the following vision developed which was described by the patient. "I see a funny looking wagon coming nearer—can look into it from the front—." Here the experiment had to be interrupted, because the patient's eyes began to hurt. She was put into hypnosis, and asked whether the visions were familiar to her. She could not identify them. The visions were reproduced in this state, but no recognition followed. The house was the only object that was identified.

Next day patient objected to look into the water, because she was in a peculiar state she did not like. After some persuasion she consented. "Is the water becoming turbid?" "No, I do not see the water. I do not know what it is. It looks like sand—it seems to be near the sea—brown grass—somebody walking—two—small figures (laughs)—it is myself." Here patient began to complain of fatigue and specks before the eyes.

For a few days the dreams were of a disconnected character, and were recollected with some difficulty, but they were either trivial experiences of her everyday life which did not in the least upset her, or they were fragmentary experiences of her earlier dreams, but in such a confused state that they could hardly be recognized. The persistent dreams were rapidly disintegrating.



The only dream that disconcerted her was a dream of her mother. She thought she saw her mother and was glad to see her alive, but was greatly disappointed on waking. Patient felt well.

She came the next day. When put into hypnosis she told me that she dreamt that in her head was something which exploded. She woke up. I told her that she will see her mother in sleep and that the old habit of dreaming will be gone. The mother will tell her that she will dream no more. The patient remarked: "If you stop my dreams, I should still dream about my mother." Patient awakened in good condition.

Patient came August 5. In hypnotic state she told me that she had seen her mother, but that the mother did not speak to her. She was greatly concerned about her mother as when alive.

The subconscious and dissociated memories brought out in hypnosis seemed to have gradually become organized and formed a personality of a secondary character which the patient felt all the while and which criticized her and found fault with the patient. The patient called her "she." "I see her, I feel her more than I see her." It was herself which she regarded as dead now come to life again. The patient did not like "her." She is with me all the time. She "looks like me when I was 18. She is becoming stronger. She talks to me and tells me of the bad things I do. She is my monitor."

The dreams she has now are of a different nature and do not refer to her previous frightful dreams. Occasionally when she goes to sleep her life stands revealed before her. She feels she should be as she had been before. Now and then Dr. S. is brought into the dream life, and the old distressing dreams are inhibited. The dreams, unlike the previous state, are now fully remembered on awakening from the sleep. Patient improved considerably by December 27, when she ceased coming.

## CONSCIOUS BEHAVIOR AND THE ABNORMAL

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PSYCHOLOGY as a definite, concrete science has gained much valuable information from related fields, and in particular it has derived great value from its relation to psychiatry, which discipline may in some sense be considered as a domain of psychological application. The psychologist has obtained from psychiatry not only the opportunity to study variations of mental phenomena, but because of the insistent problems involved in those phenomena, he has been brought to appreciate the necessity of testing out the concepts employed in dealing with mental phenomena in general. It is perhaps unnecessary to remind psychologists of the masses of information which they have derived from related, applied fields, concerning sensory processes, memory, association, sensory cortical localization, and other equally important facts. A sufficient reminder of the advantages accruing to psychology from observation of abnormal behavior is afforded by reference to some of the excellencies of James' "Principles," at the time of its publication, and the present value of the concept of personality in the study of conscious phenomena.<sup>1</sup> In this connection we may also refer to the development of the psychoanalytic movement in the field of psychiatry, and its value in emphasizing the faults of the doctrines of "mental states," and of abstract "behaviorism" in psychology. The unprejudiced psychologist cannot fail to give due credit to the Freudian movement in psychiatry for enlightening psychology concerning the importance of social factors in human behavior.

We may sum up the advantages which psychology derives from the consideration of varying types of human activity by pointing out that in consequence, psychology is tending toward a more adequate conception of its subject matter, the conception namely, that it has as its proper data conscious behavior, and not consciousness or behavior. This conception of conscious behavior, which is an immediate derivative from exact data,

<sup>1</sup> Cf. Prince, *The Unconscious*, 1914.

brings psychology into direct contact with actually existing and transpiring phenomena. Further, the development of this idea will lay some of the haunting spirits of psychology, the most prominent of which are the problems of consciousness and its variant the sub-conscious, and the mind-body problem. And finally, because psychology is thus providing for itself a more concrete, scientific foundation, it will be extremely useful in dealing with those abnormal behaviors which mark the difficulties of the psychiatrist.

A conscious behavior is a complex act of a conscious being, and serves always as a specific adjustment to some object or condition. These objects may be physical things, other conscious beings, or persons, social objects, such as customs and opinions, or some sensorially, intangible object such as a social or individual ideal. The conditions mentioned are also physical, social or ideal, and indicate the complexity of human adjustment. When psychology studies the complex adjustments of human beings it need not deny or neglect any facts of conscious behavior, and can take account of its development toward higher types of activity. Human actions need not be reduced to the simple movements of the lower animals, since provision is made by this attitude for the existence of moral, social, aesthetic and other kinds of behavior. These actions are not reduced to responses which can be correlated with extremely simple stimuli as causes. The failure to regard human behavior as complex actions with specific ends has not resulted in an increased knowledge concerning them. And when behaviors varied so far from the standard as to come under the notice of the psychiatrist, he could not deal with them, since they were neither exclusively simple, brain lesions, nor disturbances of the mind.

The dynamic description of conscious behavior may be further amplified by the enumeration of several, peculiar characteristics, which serve to distinguish it definitely from other types of action. In the first place, there is the variability of response, which signifies persistence in bringing about a specific change in relation between the individual and the surrounding conditions. There seems to be a purpose in the conduct. Another characteristic of the behavior is that it is modifiable: the organism adapts itself to conditions with reference to past actions, which past actions and their relation to present situations may be unknown to the organism. The modification of behavior in its developed form in the human species enables the individual



to act upon the basis of information. In the latter case there is implied a discriminative use of memory, which is the basis for all intelligent behavior. And finally there are the characteristics of inhibition and delay which make for a still higher development of action. We have here the beginnings of voluntary and other behaviors requiring highly elaborate, problem-solving functions. These characteristics refer primarily to the more specific mental features of conscious behavior, and are not in any sense exclusive functions of brain processes.

The analytic description of conscious behavior reveals a complex series of component functions, each member of which contributes to the total effect of the adaptive action. The series of functions includes mental, behavioristic, and environmental factors, all of which are organically related, and form a unitary function of response. These factors are invariably all present, but not in the same degree. In one case there may be a predominance of one or more factors, which may be recessive in other behavior. Every conscious behavior has as factors in its mental component three groups of sub-factors. These may be named the cognitive, affective, and conative functions. The cognitive function in its simplest form may be described as a vague appreciation of the presence of an exciting object. In more developed forms the cognitive function is represented by meanings which are the prominent cores of all discriminative responses. These meanings are important factors in volitions, perceptions, instincts, emotions, memories, and thoughts. The cognitive functions determine to a larger measure than any other factor the kind of response that the stimulus-object will elicit.

The conative functions may be characterized as the excitatory phases of conscious behavior: they are the elements which make for the original spontaneity of the individual, the sensitivity of the individual to external influences. The difference in an organism between the spontaneity attributable to mere living function, and the added spontaneity which the conative function occasions, must be insisted upon. The conative process always implies a discriminative reaction. The point is, that conative response is much farther removed from explanation on the physico-chemical basis, than are mere physiological processes. The conative functions in their integrated forms constitute the impulse type of behavior, which contrasts with the reflective type. In a general way we might say that the conative factor initiates a response, while the cognitive function deter-

mines what the response shall be with reference to the particular stimulus-object and its setting. In a way the conative function is more primitive than the cognitive function, since the former is most prominent when the cognitive function is least so. The affective functions determine the degree of readiness and capacity to respond to stimuli, and condition the continuance or discontinuance of the responsive act, when once it is initiated. The affective functions as present in a given situation, are also symptoms of the success or lack of success of a particular behavior to produce a desirable adjustment.

The specific, behavioristic factors are the three predominately physiological functions, the muscular, the glandular and the organic. Without these there can be no conscious behavior. These functions may be considered as roughly correlated with the conscious functions. For example, the glandular functions are prominent in behaviors which are predominantly affective processes, while the muscular actions are most prominent in behaviors stressing the conative processes. The third member in the series of component functions comprises the environmental conditions, which limit and control behavior by way of furnishing occasion for adjustment. The importance of this member of the series cannot be overestimated, since no act can go on *in vacuo*, and what an act is to be, must be in large part conditioned by surrounding circumstances. We must look upon all complex behaviors as instinctive tendencies to action, which are modified by interaction with the surroundings. The integration of simple response-behaviors in the human individual is very strictly regulated by natural, social, and cultural, environing conditions.

Any specific, conscious behavior is represented by varying components of the three factors just discussed. The viewpoint is implied here that no human adjustment is unconscious.<sup>2</sup> This attitude supports itself upon the fact that every conscious behavior is the act of an organized, complex individual. Conscious behavior of the instinctive, habitual sort will have a predominance of behavioristic factors, and will be more conditioned by external circumstances. The voluntary actions and thought functions are built upon a plan which features the conscious factors, and are more independent of immediately surrounding conditions. This relative independence makes for a greater mobility and efficiency in adjustments, and is adapted to fit the

<sup>2</sup> That is, in the sense of being purely physiological.

individual not only to meet the needs of some specific situation, but also to increase the possibilities of the situation. The volitional-thought behaviors function only under conditions rich in possibilities for varied responses. We must note in this connection that a conscious behavior is always an adjustmental act: its independence is extremely relative to a situation which is constantly progressing in complexity. The most elaborate thought functions are integrations of the results of trial and error adjustments to complicated, environmental problems.

The full significance of the formulae which represent conscious behavior cannot be appreciated unless we consider that every behavior is an action of a specific, conscious being, and the act is therefore conditioned by all that the individual is, and can do. This fact instructs us concerning the character of the behavior components. We learn that muscular and glandular, adjustment-processes are of a certain order and strength, effective in certain situations, and not in others. The factors of use and disuse are important here. On the side of the more definite mental components, the formulae of behavior will account for a great number of influences which determine specific actions. Included here are various products of experience, functional under the names of ideals, sentiments, interests, beliefs and convictions. These elements are permanent modifications produced upon individuals by interaction with their surroundings, both physical and social, and are complementary variations to the specific bodily changes composing integral parts of conscious behavior. It must be insisted that these individual and social complexes, which in everyday thought have come to mean collectively personality or character, are parts of acts; they are specific components of responses to human, environmental conditions. Consideration of all the component factors in any conscious behavior results in studying it in all cases as a concrete, empirical happening, which may well form the material for scientific interpretation. The consideration of the being who performs the behavior brings to light immediately the more permanent elements of such behavior. In studying the acting individual we account for the total series of capacities and tendencies of action, actually centered in the individual, modified by past action, and which at any moment is responsible for the specific nature of a present action. It is only by considering the individual that any information is available concerning the motives and intentions, which are in part the driving forces of



all complex, human behavior. In most complex actions we must depend upon information gleaned from these permanently existing, action possibilities for the meaning of behavior, and any capacity for the prediction of behavior is entirely dependent upon such information. The meanness, generosity, sufficiency and other qualities of any act are very specific functions of the complex systems of inherited and acquired action-tendencies, which may be said to constitute the individual.

The value of the theory of conscious behavior as discussed, is indicated by the application of the formulae in interpreting the serious modifications of human behavior. Abnormal behavior may be accounted for by the degree of disorganization of the component factors in the action. The point is, that what we ordinarily call an abnormal behavior may be looked upon as an act, the formula of which differs markedly from the formula representing that individual's normal or usual behavior. This fact is well illustrated by the paretics, who owing to some change in psycho-physical organization, will perform acts which are uninfluenced by their usual sentiments and convictions. This is especially noticeable in some cases in an indulgence of the sexual appetite in what under ordinary circumstances, is an entirely repugnant manner. In dementia praecox cases we find individuals, who because of some disturbing experience, now too-frequently possible in our civil conditions, are so disorganized as to lose all acts which require the guidance of certain interests and acquired action-habits. The so-called moral delinquents perform actions which seem controlled almost entirely by instinctive action-tendencies. There seems to be a lack of sentiment in the individual, such as ordinarily arises from contact with other persons, and a lack of realization of the consequences of past acts. The disorganizations found in abnormal behavior involve unit functions or series of component functions, and indicate corresponding failures of adaptation to surrounding conditions. As the histories of war shock victims are made available for study, we find every possible form of disorganization of action components. In a practical way we can locate the sources of disorganization in either the mental or the behavioristic components of conscious behavior, although it must be remembered that these distinctions are purely logical or verbal. Following this same, practical consideration we may look upon some disturbances of behavior as involving a disorganization of the mental and behavioristic components together from the environ-

mental factor. This is the condition in most genuine cases of paranoia. These types of cases show psycho-physical reactions, which considered by themselves, would be normal, but being entirely out of harmony with their actual setting, are thus abnormal.

A thoroughgoing, organic viewpoint concerning the mental functions such as is here outlined, will throw considerable light upon some vexing problems of psychology. The concepts of consciousness and the sub-conscious will take on more accurate and scientific meaning, and the traditional mind-body problem will no longer stand as a stumbling block in the way of psychology toward scientific stability.

The organic viewpoint of conscious behavior looks upon consciousness, not as an independent entity or stuff paralleling physical matter, but as a definite, verifiable factor of human behavior, which occasions definite qualities of action not found in other types of behavior. The place of consciousness in human activity is a positive fact of observation, to which psychology must give adequate determination, just as facts of energy are evaluated in physics, and living functions in biology. The organic viewpoint insists upon the description of human action just as it occurs, in terms of its component functions, and its relation to other observable, related facts.

The concept of the subconscious becomes entirely renovated and clarified. Since there is no such entity as consciousness, naturally enough there can be no such entity as the subconscious. Scientific experience indicates that there are only subconscious activities, behaviors in which the complex, awareness components are only slightly in evidence. Subconscious behavior is primarily behavioristic and environmental, and is entirely lacking in awareness of self. According to this view subconscious behaviors are merely those actions which vary from other behaviors, because of a marked inclination toward habitual or other preestablished, action systems, which are controlled by surrounding conditions. This fact removes most of the mystery attached to this type of behavior, since it is evident that these more or less automatized acts constitute by far the greatest part of conscious phenomena, and represent important phases of memory, thought and voluntary action.

The advancement of psychology as a definite science allows no room for a mind-body problem, since minds and bodies are not observable phenomena for the scientist. The psychologist

who describes any observation of actual, conscious phenomena cannot describe anything but a conscious behavior, which is the action of a conscious being. The current discussions concerning parallelism and interaction are entirely extraneous to scientific observation and description. The mind-body problem is an unwelcome heritage from the time when psychology was still a branch of metaphysics, and has not only been a detriment to psychology proper, but has added greatly to the inadequacy of psychology as an aid in the solution of the practical problems of psychiatry. The complete rejection from psychology of the mind-body disjunction would eliminate from the science the extreme, mentalistic and behavioristic viewpoints, with their consequent confusion of psychological facts.

The separation theory in psychology may be held responsible for the present unsatisfactory condition of psychiatry, in so far as that discipline is dependent upon psychology as a foundation. A separation doctrine lies at the basis of the psychogenic-physiologic controversy, which parallels the retarded development of the successful handling of failures of human adjustment. The controversy concerning the psychogenic and physiological basis for mental diseases, which has beclouded the work of the psychiatrist, may be traced to a faulty conception of the nature of human organization and behavior. The very name mental disease is a symptom of the inaccuracy of the thinking which pervades psychological and psychiatric circles. It is extremely gratifying to see how far the psychiatrist has been driven through his forensic interest to a realization that after all he is dealing with behavior and not with mental defects. The obstinate facts of moral adjustment with lack of intellectual defect have also aided in correcting the attitude of the psychiatrist. The carefully observed facts of hysteria and neurasthenia have always pointed to an interpretation of those conditions as faulty, conscious behavior. The full appreciation of the conscious-behavior attitude will give the psychic and physiological functions their proper, respective places in the total adjustment.

The sharp antithesis which has recently been developed by the psychopathologists, who stress the purely mental factors on the one hand, and the strict behaviorists, who stress automatic and reflex means of response on the other, marks a development of thought which aims to investigate the deeply, lying facts of human behavior. Since the elaboration of the ideas of Kraepelin, the so-called, mental diseases must be looked upon as defects of



personalities. Now it seems fairly clear that if we are to have an adequate notion of the actions of such personalities, we must not lose sight of any of the essential factors in those actions. We must inevitably fail to make the most of our investigations when we make the action consist of only one aspect of the whole. To stress the mental side means to arrive at a bizarre doctrine of unattached, mental states, and their unconscious consciousness and other anomalous and inexperiential conditions, which characterize the Freudian literature. In spite of the merit of the Freudian viewpoint, which has thrown much light upon the facts of experience, the movement as a psychological development is vitiated by the failure to include in its program the complete individual. This failure has resulted in the crudities of the unreal, sexual material, and in the metaphysical *libido*, both of which have neither added to the understanding of psychiatric problems, nor their solution. The Adlerian secession from Freud's position indicates at least a symptom within the Freudian movement, of the need for an inclusion of the bodily aspects of the individuals undergoing study.

The insistence upon an exclusive, physiological basis for the mental diseases is just as far from understanding the conditions of persons and their action, as the mentalistic attitude. Besides, it misses the suggestive facts concerning the place of past experience of an individualistic and social sort, as influence of human behavior. The only reason that these partial attitudes can exist at all, and not become glaring in their inadequacy, is because in certain, practical situations it does not matter whether there is an adequate basis for the treatment or not. This is not at all surprising, since even in calculation one may possibly arrive at a correct total, providing at least two errors are made. For its advancement as a science, however, psychiatry must, because of its most pressing problems, base itself upon an accurate, psychology. This is well illustrated by the fact that the history of psychiatry is very closely bound up with changing psychological conceptions. Thus, in Germany, Ziehen sought to make his Herbartian attitude stand out prominently against the Wundtian apperception psychology. This polemical procedure did not have an entirely salubrious effect upon Ziehen's conception of mental disease. Kraepelin found especially objectionable Ziehen's paranoia group, because it contained entirely different, chronic conditions, and acute psychoses, through the influences of being disorders of the "intellect."<sup>3</sup> The influence of the

<sup>3</sup> Adolf Meyer, in Church and Peterson, *Nerv. and Ment. Diseases*, 1909, p. 674.

Wundtian psychology upon Kraepelin's psychiatry is marked, although Kraepelin has seriously raised the issue between clinical and psychological psychiatry. Kraepelin was led to raise this issue by his recognition of the inadequacy of certain types of psychological view-point. The difficulties of his own classification and description arose in large part from his failure to realize that instead of abandoning psychology it was necessary to adopt a satisfactory, psychological attitude.

We must insist that it is not only psychiatric classification which calls for an adequate, psychological conception as a foundation, but indeed all phases of psychiatry. The lack of such a foundation may be considered the source of the difficulties which calls for an adequate, psychological conception as a foundation, but indeed all phases of psychiatry. The lack of such a foundation may be considered the source of the difficulties experienced in physiological circles with Wernicke's localization theories. Such controversies as existed between the rival schools of Nancy and Salpêtrière in the psychical group, may be traced to the same source, while the recent success of the psycho-analytic movement may be taken to be a symptom of the extreme inadequacy of a psychology of "mental states" or of abstract "behavior."<sup>4</sup> A study of the present status of psychiatric principles and procedure creates the presumption that a helpful psychiatry would be one which considers human behavior as a complex action involving a series of component functions.

We might point out in conclusion the fact that precisely because the study of conscious behavior is a matter of concrete, existing phenomena, it can break across the boundaries of the theoretical and the practical. We find that psychology, which may be looked upon as the more theoretical or "pure" science, makes progress on the basis of data derived from the abnormal field. On the other hand, because psychology as a more theoretical science is not driven by the urge of immediate accomplishment, it can bring into its domain such order and interpretation of fact as to be able materially to aid psychiatry to deal adequately with its problems of human adjustment.

<sup>4</sup>Cf. Watson, *Journal of Philosophy, Psychology etc.* xiii, p. 589. Jelliffe, *ibid.* xiv, p. 267.

## THE INCREASING IMPORTANCE OF THE BIOLOGICAL VIEWPOINT IN PSYCHOPATHOLOGY AND PSYCHIATRY

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**T**HE work of Darwin and the tremendous influx of biological knowledge that came thereafter, had a most wholesome and invigorating influence upon scientific thought not only in biology proper but in all allied fields of scientific endeavor. Its welcoming breeze blew soothingly and with stimulating effect upon the troubled and sweating brows of innumerable toilers in the fields of science, relieving their flagging energies and failing hopes and goading them on to better and to greater things. Every sailor in the ship of science rode the waves with more joyous heart and more surging spirit. The land of hope and dreams and work and light lay beyond them, in their new visions. They both basked and worked in the reflected sunlight derived from the newer trends in biological thinking.

Psychology, too, rose with the tide. Psychology, too, rode the crest of the scientific wave. And now, more than ever before, is psychology under the influence of biology. The whole behavioristic movement and the genetic viewpoint are definite evidences of this. The study of behavior is now the slogan or battle-cry of so many fighters in this camp. Watson, Yerkes, Kirkpatrick, Parmelee, Thorndike, McDougall, Shand, and many others are reaching for the same prize. From Spencer to James, Baldwin and G. Stanley Hall and his followers we see the same efforts, from somewhat different angles.

Psychology has, indeed, taken on a new lease of life, and its future seems today to be brighter than ever before in its past life-history.

This means that it is now generally recognized that psychology is a branch not of philosophy but of biology. This means, furthermore, that mere description has given way to efforts at more profound analysis and unearthing of the ultimate genesis.

The study of abnormal mental life in human beings, a study



which comes under the rubrics of psychopathology and psychiatry, had, until comparatively recently, been concerned to a great extent with the much needed work of description and classification. Although this work is by no means completed even at this time, still, it is cause for congratulation that here, too, the analytic and genetic viewpoint, the biological and evolutionary approach, has been making itself felt more and more.

The French school, with Charcot and those who came after him, particularly Janet, have done noble and painstaking plowing of the untilled soil in psychopathology. The German students, for the most part, with Kraepelin and his school and many others independently, have used the rake with good effect in psychiatry.

Added to their work, we have the present era, so to speak, with its very intensive analytic and genetic tendencies. Janet and others labored assiduously in this direction. Freud, Jung, Adler, Bleuler have endeavored to dig more and more deeply into the foundations of things.

In the United States and Canada, Adolf Meyer, Boris Sidis, Morton Prince, and others (White, Jelliffe, etc.), have contributed in varying degrees, from somewhat different angles, to the solution of the problems at hand.

Different schools have arisen, with apparently widely differing attitudes.

In the meantime considerable progress has been going on in the study of the mentally defective and the delinquent, with the names of Binet and Simon, Goddard, Healy and many others to the fore.

The studies of the bodily effects, or, as William James would say, the bodily accompaniments or manifestations or evidences of the emotions, of the ductless glands, and of the involuntary nervous system have given us new avenues of attack, new vistas.

The whole field has widened, so that all sorts of phenomena, such as the so-called psychopathological acts of everyday life, dreams, myths, legends, fairy tales, child study, animal behavior, the conditioned reflex, and allied questions have added untold interest to psychopathology and psychiatry.

The study of behavior in the broad sense of the word has definitely become the work of the day.

The researches of Pawlow and his followers in physiology, of Cannon, of Crile, of Sherrington, of Bechterew, of Loeb, and

of Jennings, have been made use of by psychopathologists, psychiatrists, and psychologists.

The study of behavior, then, in its human aspects, has been made the centre of the stage. And since human behavior is but a part of behavior or life in general, what more natural than to expect that biology should come to our rescue and be our deliverer?

Adolf Meyer has assumed a broad biological viewpoint in psychiatry. Freud, Jung, and also Adler, and their followers, have, for the most part, confined themselves to the present life history of their patients in their interpretative efforts, although they have perforce been compelled slowly to resort to broader biological, evolutionary views.

In this respect we can expect great aid from the out-and-out biologists and psychologists.

Prince and more particularly Sidis have been helped considerably in their work by the adoption of a truly biological attitude.

Claparede<sup>1</sup> has made a plea for the biological orientation and interpretation in psychopathology and has indicated its value.

Lydiard H. Horton<sup>2</sup> has attempted to explain dreams from this viewpoint.

And, in general, one may say that one finds evidences of a more definite and clearer biological and evolutionary viewpoint on every hand.

There is a quickening interest in all the social sciences, and I doubt not but that one of the results of the terrible war now raging all over Europe will be an even greater impetus in this same direction.

Man is being driven to have a greater interest in the conservation of human physical and mental health and human life, and the importance of the social sciences will be projected into the limelight more and more. It is but to be expected that progress in this field will go forward with great bounds.

It is my hope that before long there will be a harmonization or synthesis or unification or integration of the apparently split-off and ramifying trends of the so-called schools in psychopathology and psychiatry, and that then better agreement and

1. The Value of Biological Interpretation for Abnormal Psychology, *Journal of Abnormal Psychology*, June, 1906.

2. On the Irrelevancy of Dreams, in the Light of the Trial-and-error Theory of Dreaming. *Journal of Abnormal Psychology*, August-September, 1916. Also the Apparent Inversion of Time in Dreams, *Journal of Abnormal Psychology*, April-May, 1916.

working together and understanding will be the end-result. This can but lead to more rapid strides forward in the upward drive to grasp and solve the numerous problems which beset us in the complex field of abnormal human behavior.

Evidences of this unification are, to my vision, at any rate, already present. Let us hope that in the very near future the bonds of union between the divergent trends now existing will be drawn tighter and tighter, and harmony and progress will reign supreme.

The biological viewpoint, with its pregnant possibilities, has not yet scratched the surface of psychopathology and psychiatry. The fruits of sowing our seed in its field will come to us in ever-increasing measure as the years roll on.



# THE JUDGMENT OF EMOTIONS FROM FACIAL EXPRESSIONS

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**M**Y interest in the question of the judgment of emotions from facial expressions, and of the validity of first impressions led me to arrange an experiment in the Harvard Psychological laboratory whereby the ability to read emotional expressions could be tested. Among other data, certain facts concerning the nature of emotions, their relation to each other, and the various forms and degrees of difficulty of interpretation were obtained, and have seemed of sufficient general interest to be described here.

The ideal method would have been to judge actual facial expressions under emotional strain, but that was obviously impossible in the laboratory. A cinematograph, would have been almost as good and more practical, but not having such an instrument, I had to resort to pictures. From Rudolph's "*Der Ausdruck des Menschen*," which contains 680 pictures, I selected 105 of the best. These pictures were sketched from photographs of a skillful actor who posed for that purpose.

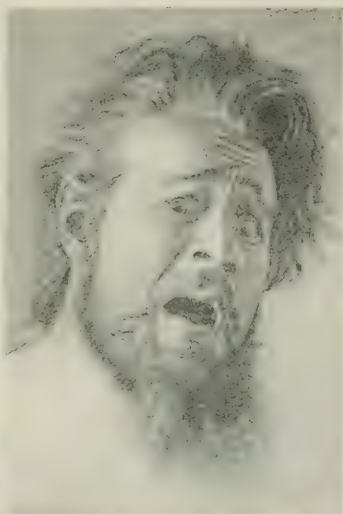
The pictures were shown to two subjects at a time, there being in all four men and two women. They were asked to write down their interpretations of the emotions portrayed. About thirty judgments were made at one time. After the entire number had been gone through, the pictures were shown a second time, but not in the same order. The subjects were again asked to write down their judgments. This was to discover the degree of constancy. They were then told the judgments of all of the subjects, and also the book titles of the pictures. This was to discover if they would recognize their own judgments, and also if they would select the book title. They were then told the book title, and asked if they preferred that title to the judgment they had made. In this way the accuracy of portrayal by the artist could be ascertained. It may be stated here that the subjects were fairly consistent, that they did not very frequently

recognize their own judgments, and that there were typical differences in their ability to judge such expressions. I have only taken those pictures for further discussion whose book title

1



2



3



4

was accepted by at least three of the subjects. It is fair to assume that this 50 per cent acceptance indicates a successful portrayal by the artist. Of the other pictures, upon whose title

only two or less agreed it would be difficult to say how much the judgments were influenced by the deficiencies of the artist.

Although I have spoken of the expressions as emotions, the ones to be analyzed will include what generally are termed "moods" and "sentiments." It is often very difficult to make a distinction between these latter and emotions, as the one passes readily over into the other. Also we are concerned only with their outward expression and not with their significance and source.

In most instances complex emotions, usually with one dominant emotion, have been portrayed, and it will be especially interesting to note how well this complex expression has been analysed. Let us begin with the "amazement" group. In a picture entitled "amazement, doubtful," all the subjects noted surprise, and several interpreted the "doubtful" by "skeptical." If the amazement is very strong, we have the expression of fear. Five of the subjects called strong amazement either fearful surprise, sudden terror, terrified surprise, horror, or frightened surprise. McDougall writes—"Surprise is merely a condition of general excitement which supervenes upon any totally unexpected and violent mental impression," etc.<sup>1</sup> "Startled and unpleasant amazement" brought out horror and terror very strongly, while amazement which was mildly unpleasant was seen as doubting, anxious, puzzled and perplexing surprise. This puzzled expression is frequently seen in the mild amazement as contrasted with the fear and terror of the strong emotions. In "amazement with hate and scorn," the amazement was for most lost in the stronger emotion. Of the twelve judgments only four times was amazement or surprise seen. The hate and scorn were seen as strong contempt, angry revenge, strong scorn and anger, mean, vengeful surprise, and resentful, antagonistic surprise. The scorn also aroused the idea of boastfulness and defiance.

In order to give the reader an idea of the accuracy of the judgments, four of the pictures used in the experiment have been reproduced on page 173. The first of the pictures is supposed to represent "speechless amazement."<sup>2</sup>

<sup>1</sup>Social Psychology. Pg. 157.

<sup>2</sup>The 12 judgments for this picture, that is, the first and second judgments of each of the six subjects, are as follows:— (1) Frank surprise, (2) Unsophisticated wonder with fear, mild; (1) Stupefied alarm, (2) Surprise; (1) Mingling of surprise and slight displeasure, (2) Dumfounded, half frightened; (1) Skeptical surprise, (2) Surprise, strong apprehension; (1) Stiffened amazement, (2) Strong amazement with slight fear; (1) Stupefied alarm, (2) Startled surprise.



The anger group was represented by very strong, peevish anger, and anger, laughing against the will. The feeling of pain, distress, tormented fear, and grief were seen in both pictures more frequently than the more aggressive attitude of anger. This apprehension of what might be called "centripetal" feeling such as fear, pain, distress, instead of the more violent aggressive emotions such as anger and hate occurred frequently throughout the experiment. Intimation of peevishness is seen in the judgments of fretful pain, complaining and distress, about to cry. The attitude of "laughing against the will" was noticed by two of the subjects, and interpreted as transition from mirth into pain and distress, and laughing and crying.

A "mild, impotent hate" was judged several times as a feeling of fear, pain, sorrow, anxiety, and discontent. Hate was only mentioned once, but the book-designation was accepted by three subjects. Unqualified hate was frequently judged as anger, and several times as scorn and contempt, but never as hate. On the other hand, "vindictive hate" was seen by five subjects. Anger was here also shown to be closely related to hate, and the vindictiveness is seen in judgments such as snarling revenge and extreme malice.

The malicious mood accompanied by vindictive laughter, was frequently interpreted as hate. The malice appeared in such adjectives as nasty, gloating, hateful, vindictive joy, triumphant hate, and spiteful rage. This mood seemed very well represented in the facial expressions.

In the disdain, contempt, and scorn group, disdain was represented together with very mild pride and superiority, and greater pride and superiority. In the first case, the superiority and pride were noticed as smug complacency, arrogance, haughty assurance, egotistical calm. The disdain was not seen until it was pointed out. In the other case, however, when the pride was more strongly represented, the disdain was seen at once, and interpreted by some as disdain, but more frequently as contempt, sneering, and scornful arrogance. This seems to indicate the importance of pride in the attitude of disdain. When contempt is portrayed accompanied by a mildly ironical and superior smile, the superior smile gives rise to the judgments of self-satisfaction and scornful arrogance, and pleasure in triumph, but the contempt was not seen until the title was shown, except, perhaps, in the case of scornful arrogance. When the contempt was portrayed with diabolical laughter, the diabolical laughter

was frequently correctly interpreted, but again the contempt was not seen until the attention was directed to it. It seems evident that in both cases the laughter drew the attention from the more subtle attitude of contempt. An interesting picture represented the attitude which can best be described by the phrase "I am sorry, but I cannot help you." This was judged as contempt, disdain and arrogance. This attitude is seen in the uncharitable, where it is so frequently a mixture of scorn and a suspicion of self-satisfaction, which latter was also noticed in this picture. In the picture of "scorn with wicked laughter," anger is prominent in the judgments as well as hate. This seems in accordance with what McDougall says—"When an object excites our disgust and at the same time our anger, the emotion aroused is scorn."<sup>3</sup> In scorn with cynical, mild contempt, the scorn was seen by several, but the cynical attitude was observed only when pointed out, and then four of the subjects agreed with the title.

A number of pictures were shown representing misgiving with various combinations. When the attitude was mild, it was interpreted frequently as surprise, when stronger, together with surprise, it seemed liked distrust, perplexity, and also fear and anxiety. One picture portrayed misgiving together with meditation upon evil. It was the latter attitude which was noticed, and described as plotting, disgruntled discontent, brooding, sullen, and vindictive. Perplexity was the only description here which referred at all to misgiving. The same can be said of misgiving with a meditative, fixed stare. Here, also, perplexity is seen, as well as contemplative thoughtfulness, fierce contemplation, perplexed consideration, etc. In the picture entitled, "misgiving wavering between jest and earnest," the conflict, as in the previous instance of conflict, was seen by several of the subjects.

In the picture of fear, which was entitled "fear with a wicked, evil conscience," the fear was seen and also the surprise which accompanies fear, and, just as fear was seen in anger, so anger was seen in fear. The second picture on page 173 depicts "fear and horror."<sup>4</sup> The picture of "very strong terror" also gave rise to several judgments of anger. The terror and fear, at times

<sup>3</sup>Opus cit. pg. 135.

<sup>4</sup>The judgments were—(1) Excessive pain and suffering of self or others, (2) despondent pain over another's danger or disaster; (1) Pain, (2) Horror, surprise; (1) Acute pain with fear, (2) Horrified anguish, contempt; (1) Anger, (2) Apprehension, terror; (1) Terrified fear, (2) Insane fear; (1) Rage, (2) Terror from pain. Here also anger and rage are seen with fear.

accompanied by amazement, were readily seen. In the picture portraying "strong anxiety and horror," the stronger reaction of horror diverted the attention from the attitude of anxiety so that no one saw the latter until the title was given him. Again, as with fear and terror, the accompanying surprise was also noticed.

Aversion was represented by "aversion with strongly suspicious fear" and "by very ordinary aversion accompanied by nausea." In the former picture, hate, contempt, anger, and disgust predominated. The fear was also noticed by several, but there was no impression of suspicion conveyed. In the latter, aversion was seen as dislike, scorn, contempt and disgust. Nausea was only noticed by two subjects, but all six subjects accepted the title when told. The ideas of fear and of anger were also to some extent aroused. That these two emotions should be seen in a very strong expression of aversion is to be expected. They are entirely lacking in the milder form of aversion which is shown in the third picture on page 173. Here, contempt and disgust predominate.<sup>5</sup>

The distrust group, like the preceding aversion group, conveyed the attitude intended. "Simple distrust and doubt" were seen as suspicion, bewilderment, questioning contemplation, and puzzled reflection. The "distrust with suspicion and fear" aroused in most cases suspicion, apprehension and anxiety. Only one judgment mentioned distrust in this setting. The third picture represented distrust with strong biting of the under lip. In this case, distrust was only mentioned twice. The lines of the lip combined with the expression of distrust, gave rise to judgments of determination with evil intent, such as plotting, angry determination, malice, and plotting determination, etc. The fourth picture on page 173 represents "very keen distrust."<sup>6</sup> One picture represented sinister determination, animosity. The determination was seen by several subjects. The animosity gave rise to judgments of resistance, indignation, dislike, fierce and bitter determination. Five of the six subjects accepted the

<sup>5</sup>The 12 judgments are as follows:—(1) Disgusted contempt, (2) Scornful contempt accompanied by an inner feeling of slight puzzlement; (1) Contempt, (2) Dislike and disdain; (1) Medium strong contempt, (2) Contemptuous scorn; (1) Disgust, (2) Disgust; (1) Sneering contempt, (2) Mild dislike and disgust; (1) Sneering contempt; (2) Contemptuous aversion.

<sup>6</sup>The 12 judgments are as follows:—(1) Analytical, reflective with anger, (2) Inquiring speculation with critical constructiveness; (1) Concentration, determination, (2) Contemplation, planning, dislike; (1) Firm and mildly angry opposition, (2) Pugnacious contemplation; (1) Thoughtful doubt, uncertainty, (2) Doubt, distrust; (1) Unintelligent doubt, (2) Meditation, doubt and suspicion; (1) Scornful distrust; (2) Deep thought with suspicion. The book title itself in this instance was accepted only twice, due undoubtedly to the fact that the subjects' titles were more fully explanatory of the intended mood. The anger seen by two of the subjects was seen by these same subjects in the first picture mentioned in this group.



book title. There seems to be evidence that determination and forms of animosity are readily seen.

Laughter is probably depicted and judged more easily than any other emotion. As it is a very strong emotion, the more subtle states are often hidden. That is the case in the picture of "suspicious laughter," for the suspicion is not seen as such, although there is intimation of it in one of the judgments. Three of the subjects, however, selected the title with suspicion when presented with the other judgments.

In the picture of "bodily pain and screaming," the pain was seen by almost all the subjects, and the screaming was judged as crying by two. It was also seen as anger and revenge by several.

When "entreaty with strong, cordial smile" was given, the laughter emotion predominated, and the entreaty was seen only by one subject, and that as smiling and begging. The entreaty was, however, noticed by three of the subjects as soon as attention was called to it.

The picture of "sulky, defiant ill humor" produced uniform reactions. Although the mood, ill humor, was not mentioned in the judgments, all six subjects chose the book title from among the other titles. On the other hand, the more subtle mood of pessimism was accepted in one instance by only one subject, and in another by two, and referred to by no subject in his original judgment.

The attitude of devotion and reverence was judged as peaceful meditation, religious contemplation, uplifting thought, etc., but when the artist attempted to portray religious inspiration, he signally failed. Three pictures, supposedly representing this state, were interpreted almost without exception as amazement, frequently accompanied by fear. It may be that this failure is caused by racial difference, the Teuton being prone to express such moods in exaggerated form. McDougall says "Emotions that play a principal part in religious life are admiration, awe and reverence,"† The awe expressed as amazement and fear seems to be the only element of this religious attitude which the artist caught.

At the end of the series of experiments, the subjects were asked to describe the method by which they interpreted the experiment. Their interpretations offered sufficiently interesting points to be partially reproduced here. That which strikes one most forcibly is the close agreement of the various reports. The empathic response or sympathetic imitation of the facial

expression in the picture is the one almost invariably adopted. There is frequent reference to kinaesthetic sensations of imitation in the observer's own face. Rarely, however, is this facial imitation sufficient in itself to establish a satisfactory judgment. Five of the six subjects referred to the fact that they had to imagine an entire situation which would involve responses of the entire organism. The individual of the picture was imagined in a certain definite situation such as being faced by some one against whom he could show his anger. At times the observer consciously imaged himself in the scene. It is probable that at other times he unconsciously identified himself with one of the group. The emotion, at least in its incipient stage was aroused in him by this participation.

In some instances an association was formed between the picture and some well known painting expressing definite emotions or else situations which had actually occurred in the experience of the subject were recalled.

Only one subject denied any active participation. That the introspection of this subject did not discover such an attitude is not positive proof of its non-existence, partly for the reason that she was not very well trained in such reports. An explanation of her exceptional attitude, however, is suggested by her own description. She had all through her life made a study of faces, and had thereby made close associations between certain emotions, personal characteristics, etc., and the various lines of the face. It is possible, therefore, that through this habit the emotions were more directly observed than in the case of the other subjects. It is needless to state that the other subjects also must have made some direct response, either through direct empathic imitation of the features, or through association with some known situation; otherwise, they could have had no clue by which to start their imagery. That is, there must have been some impression before imaging a situation in order to give it the proper setting. The situation would then offer them opportunity to experience more subtle shades and combinations, and to correct their first impressions.

Mention was also made by several subjects of the fact that they got their clue from certain features to the exclusion of others. It is fair to assume that this frequently occurred, especially when certain features were more strongly affected than others, and that this caused a wrong, or at least only partial, judgment. Is it not just this habit of being attracted by the more pronounced

lines of the face that so often causes one, in actual life, to misread character? Frequently we are deceived into judging by the stronger and more transient expressions, and neglecting the subtler and, perhaps, more important lines

The following are extracts from the introspections. One subject writes: "Frequently the expression was visualized as appearing upon the face of some person of my acquaintance, and the effort was made to estimate the circumstance that would call forth that expression. Where the picture shown represented an expression of common occurrence or of not too detailed a character, this general idea was enough to indicate the estimate of the picture, the judgment being rendered very promptly. A few times I was conscious of a definite attempt to reproduce the expression in my own countenance in order that the resultant lines and sensations might aid in getting the meaning. Frequently the expression was analysed, the effort being made to determine the meaning of the eyes by themselves, then the mouth, etc. The result would sometimes be a unit, often a positive, complex description. The judgment was frequently made by trying to imagine what was before the eyes of the man in the picture, that is, trying to imagine the circumstances which would be apt to produce such a facial reaction."

A second subject writes: "For the most part the particular face was inserted in a visually imagined episode; and the judgment of the individual's emotion made according to what would necessarily be involved in the given situation. Sometimes there was an addition of auditory images of what the individual under the circumstances might say. A second method employed now and then involved imagining the individual and myself alone in a situation. In this case, also, the auditory images perhaps more often played a role. In some further cases, the two methods were combined; the method being to imagine a situation involving the individual with several others and myself either with or without the auditory imagery. Rather often all of these methods included specific memory images of actual experiences in which individuals gave vent to certain expressions and emotions. In almost every case, also, there was a distinct kinaesthetic imagery in myself, especially, the muscles of the face; a slight tendency to mimic the expression in the picture. Almost always this was involuntary. Actual expressions almost resulted, often before I was conscious of the strength of this imitative impulse. This was most common



in the cases when I imaged myself as a member of a group in a situation, from which I reasoned by analogy the emotion of the individual in the pictures . . . . .

A third subject records: "In judging the facial expression of the pictures I find that in most cases I look first at the mouth, and jaw. When I have secured an impression of any kind, I have a tendency to set my own jaws and lips in the same attitude and with something of the same degree of muscular tension. This done, I imagine a situation in which I might be disposed to use such a muscular set. Almost always I employed words to suit the case, and imagined other people to whom I was reacting and a situation in which we were placed. I think it is fair to say that there was practically always a social aspect to my perception of the picture. In many cases the kinaesthesia extended into my arms and thorax, if not throughout the whole body. It is safe to assume so, at least, for I am strongly kinaesthetic at all times.

After the first inspection of the lower part of the face, I took in the nose, cheeks, and then the eyes. I can see now that out of this procedure came the basis on which I sometimes changed later. I was set at first by the lower half of the face; the set was strengthened by use of words and an ensuing kinaesthesia; then when I took in the eyes and forehead, I was not so ready to give them their due weight as I should have been. I was influenced toward this action by the—to me—very remarkable lips and jaw of the man whose face was pictured. They struck me from the first and took the center of consciousness, almost always, immediately the picture was disclosed. When it came to the second presentation of the picture, I was frequently made to see, by the judgments of other subjects, that I had not given all parts of the face due consideration. In deciding whether to change or keep my own judgment I was therefore called on to determine whether I had given due value to all the factors in the presented expression. Sometimes I found elements that had been overlooked, and then I changed. If I did not find any, I tended to stand by my original statement."

A fourth subject writes "Sometimes I tried to think of myself with that particular facial expression, but usually I thought of that expression on another face, and tried to think when and where I had seen a similar expression before. There were certain expressions of the eyes and mouth which I also remembered as having been taught meant certain definite things."

A fifth subject says "In judging the facial expression, I almost invariably imagined, and always in visual terms, some situation in which the character might have assumed such an expression. Then, very frequently, I thought of my face screwed up or composed in that way, and how I would have to feel to assume such an expression. This imagery was so strong that I frequently noticed my facial muscles twitching. At times, but rarely, I consciously and deliberately assumed the expression of the face in the picture. This was usually in the case of expressions that were difficult to judge. At other times it was like seeing a tableau with one of the actors looking like the picture, and then trying to imagine what the others were doing to make him look like that. I noticed many associations with the story-books I had read and incidents of my own life. Especially was this true at the beginning of the experiments. Judgments at the latter part were less intensely personal. Visualization was not so vivid and at times almost absent."

The sixth subject, who was the one mentioned above as not having kinaesthetic imitation, remarks "It is easier for me to tell the methods I did not use in judging the facial expressions than the one I did. I could not get any clue as to the emotions expressed by imitating the facial expressions or trying to imagine how I should feel if I looked like that. Neither could I get any idea by thinking of other people. All my life I have studied peoples' faces in cars, theatres, restaurants, to see what characteristics they showed. I never used comparisons, but always looked first for the general idea, then analysed each feature and line to see what each contributed to the general impression. I had never seen, in actual life, such strong and violent emotions as the man expressed, so I merely considered him as an individual, and used the same methods as I employed on living people. Some pictures reminded me of paintings and portraits I have seen, carefully labelled by the artist as to the emotion, and this was a little help in knowing how others regarded the emotions they were expressing."

The similarity in description of these subjects is so marked that it might be suspected that their introspection had been suggested by the experimenter. The question put to them in written form was simply "Describe as fully as possible the manner in which you judged the facial expressions." Without consulting anyone, they wrote out their description, and handed it to me, and it has never been shown to anyone.

In conclusion, the following brief summary may be added. It did not need this experiment to prove the well known fact that emotions and attitudes can be judged from pictures. That the judgments would be so uniformly good and consistent, however, even when made by individuals who, with a few exceptions, had never assumed any particular aptitude in this direction, is of some interest in the study of emotions. Even many subtle combinations of emotions were observed, and conflicts such as half crying and laughing, or between jest and earnest, were noticed.

Laughter was, almost without exception, observed. Anger, fear, and hatred were also most expressive in all their forms. The intimate relation of anger and fear was brought out. Fear was seen when anger predominated and anger when fear was uppermost. Fear was also seen in amazement.

Hatred was frequently interpreted by the more active, attitude of anger and contempt resulting from it. Suspicion was often judged as surprise. The contempt and scorn group was unmistakable, the lines of the mouth and also part of the nostril rarely escaping attention, or missing their effect.

When a combination was presented, the stronger emotion frequently inhibited the perception of the more subtle and, sometimes, more important one.

Certain moods such as sullenness and peevishness were correctly interpreted. It could hardly be expected, however, that temperamental attitudes such as covetousness and pessimism would be seen. It is the effect of these impressions that is observed; the temperaments themselves are judged by inference, and the subjects were either incapable or, at least, not instructed by the general nature of this experiment to make such deductions.

The reports of the subjects showed that they obtained their results frequently by kinaesthetic imitation, and by association with known experiences, and by the imagining of situations which would give rise to such emotions. Modern psychology teaches us that cognition is an active attitude toward an object, and although we are not conscious of it in judging our fellow beings, our organism is undoubtedly adjusted according to the clue afforded by the expression. In the field of art, empathic imitation is practically universal. Here, not only do we have the facial expression, but also most frequently the situation. The results of the introspection give some indication of th



importance of the surroundings in a picture for the conveyance of the true message in the face.

In a subsequent paper,<sup>7</sup> results of further experimentation will be recorded. It will be shown how wide is the range of ability in interpreting emotion thus expressed. It will also be shown how very suggestible some individuals are in this regard.

<sup>7</sup>To appear in the *Psychological Review*.

<sup>8</sup>Miss Feleky, in an experiment similar to the one described, obtained some results in accord with ours. She found that the aversion, contempt, sneer group was easily observed, hate brought out disgust, and rage gave terror. She found that fear was part of suspicion. Laughter was also easily observed by her subjects. In our experiment, determination was frequently correctly interpreted. Miss Feleky's results are not in accord on this point, probably due to the pictures she used. (*The Expression of Emotions*, A. M. Feleky, *Psychol. Review*, 1914, pp. 33-41.)

## NARCOLEPSY<sup>1</sup>

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**L**H. P. was forty years of age when he first came under observation, referred to me by Dr. Felshaw of Holly, Michigan. As a boy he lived on a small farm and worked by the day. At eighteen he was employed as laborer by a lumber company and later for fourteen years on a band saw and shaper; recently in a piano factory. Education is slight. He found reading particularly difficult, being easily embarrassed. He drank occasionally but has no habit of intemperance and was never intoxicated but once. Since eighteen he has smoked excessively; sexual habits good. His father deserted the family before the patient's birth. The father was industrious and resourceful, was temperate in habits, but from one account received, somewhat erratic. The mother died of apoplexy at the age of sixty-eight. In later years she suffered from rheumatism and occasionally from asthma. A sister of the mother died from what was called "bronchial consumption;" she "choked to death."

From the age of ten to twenty years the patient suffered from asthma. He speaks of impairment of hearing in the left ear but examination does not confirm this. At the age of eight he received an injury to the head from an axe helve. There is a two-inches-in-length, narrow groove-like line created apparently at the expense of the outer table following the coronal suture right side; no depression of bone. He has no recollection of how serious the trauma was regarded at the time it occurred, nor as to the extent of debility. There is a difference of opinion between his wife and himself as to emotional and inhibitory qualities. He himself claims a good disposition but the marital partner avers that he is high tempered and sometimes unfair to the children.

I was consulted because of a condition of somnolence which came upon him now and then overwhelmingly and had been

<sup>1</sup>Read at the 44th Annual Meeting of the American Neurological Association at Atlantic City May 9th, 1918.

present for sixteen years. It often affects him while at work, and almost invariably if he is not busy. It has increased in severity with time but varies in accordance with the activities of the moment. The recollection of the first attack is that he became drowsy and had to fight off the sensation. A fellow workman at a machine eight or nine years ago mentioned to the patient (so he says) that he had seen him several times with the eyes shut and feeding a planer. This person subsequently interviewed, had no recollection of the observation but said that he had "seen him when he looked sleepy, and considered him of the lazy sort." When drowsiness threatened, he was accustomed to shake himself or to go for a drink of water. Frequently in this manner the attack was aborted. A change of employment was always helpful. Such had been made just before I saw him two years after the first consultation. He had been assigned to a new and slightly unfamiliar work and for the preceding week there had been no attack while in the shop. He can drop asleep at any time he wishes and is certain to when he sits down on return from work. A description of the last attack is like many which he has experienced. "Before I knew it I was dumbfounded like." He had dropped asleep soon after reaching home. "My wife called to me," he said: "I woke right up but could not for a time move from the chair. I couldn't have moved if the house had been on fire. It was half a minute before I could get myself together." "Once when I was sleeping in my chair a rap came at the door. My wife called the second time. I heard her but couldn't raise myself out of the chair. I seemed dumbfounded like but knew there was somebody at the door. I go to work in the morning. Sometimes during the forenoon there will be a feeling of sleepiness. It is almost impossible to keep from dropping my work. Sometimes the sleep is heavier than others according to what I am doing; am bothered in the same way in the afternoon. If I feel it coming on I go out into the fresh air. It will come back when I go home. If I sit down I go to sleep." The awakening, if spontaneous, is always the same. "It leaves me as quick as scat. Lots of times it comes over me like dumbfounding. I don't realize what I am doing. I can't really explain it, I slack right up with my work. If I go too sound asleep I can't refer myself to what I was doing at the time. I have to stop and look at feel work to see if I am doing it right. Just after it leaves me I my pain over my right temple both sides and back of the eyes."



Sometimes he has a hazy recollection of what is going on and when lying down apparently in deep sleep answers as if partially conscious.

At the first examination he mentioned pain over the temples and uncomfortable sensations in the neck following attacks. Latterly, there have been no phenomena of this kind. An interesting feature is related to emotional expression. He is unable to laugh as others do. If anything amuses him, the physiognomy is distorted and uncomely. When playing with the children he is apt to lose muscular control. "If anything should come up that would cause me to laugh real hard, that strikes me as real funny, I seem to wrinkle right down, losing my strength until I catch myself."

During the latter part of the night he says he is as a rule wakeful. His wife sleeps with him but has not observed any evidence of convulsive attacks. There has never been biting or laceration of the tongue, never blood on the pillow. His wife is perfectly confident that in the emotional attacks mentioned when he crumples up, there is not the slightest loss of consciousness. The sleepy state lasts as a rule not more than fifteen minutes when, if he is not aroused before, it terminates spontaneously and control is complete. If awakened, he finds it momentarily impossible to rise from the chair. He speaks of slight memory defect but from his own account this is immaterial. He has no difficulty whatever in giving an accurate account of a recent day's doings. "Once I was stamping numbers on a piano and it came on me so quick that I stamped the whole dozen numbers all the same. After the attack was over, it occurred to me that I might have made a mistake so I looked at them, marked the numbers out and stamped them all over again. When anyone goes by me during an attack, or particularly when anyone comes up behind me, I am just as wide awake as ever." His description of "dumbfounding" indicates merely a strong impulse to go to sleep. Whether this is resisted or not depends upon circumstances. There are no tremors, ataxia, or Romberg. The reflexes are normal, the pupils are equal, there are no focal or Jacksonian symptoms.

He is subject to dreams which are for the most part pleasant. Once in a dream or confusional state he jumped from bed, seized and loaded a gun, and made his way to the kitchen. This room was colder than others in the house and the chill awakened him. He explained to his wife that he thought he had heard a noise.

She attributed the circumstance to nightmare. His wife says, "When he is pleased over anything, I could lead him around or throw him down. He seems to lose his strength altogether. When he returns from work at the close of the day, he almost invariably goes to sleep in his chair. Sometimes he will answer if spoken to. At other times it is necessary to shake him." She is under the conviction that he was marked by his deserted and lonely mother. He was born August 1st and in the later weeks of pregnancy the heat affected her greatly. She was accustomed to sleep in her chair for long hours.

Kraepelin makes the following observation respecting the condition under consideration: "Furthermore Friedman, following the work of Gelineau, has set off a special form of small attacks, which he designates as *Narkolepsie*. Such conditions consist of brief transitory mental lapses in youthful individuals, which resemble epileptic attacks, but are regarded by him as being peculiar attacks that occur after fright and emotional excitement, or looking into the light. They are not influenced by bromides and do not lead to deterioration. After a number of years, one may recover. The patients have attacks more or less frequently, having as many as 100 during the day. They last for  $\frac{1}{4}$ -3 minutes, and during this time there exists a sort of inhibition of thought, without loss of consciousness. This robs the individual of his freedom of action and is sometimes accompanied by peculiar actions, such as exhibitionism. The pupils are often dilated and the eyes turned upward. It seems to me most likely that these conditions should be regarded as hysterical. Much valuable information can be found on this subject by further observations and perhaps it would be well to include among these, those which have been described by Schanz, Codivilla, and Gaugele, who have observed attacks like epilepsy occurring after severe orthopedic operations. These attacks seem to be released by the emotional excitement of the situation."

Dejerine writes more clearly.

"*Narcolepsie*.—This term was employed for the first time by Gelineau (1881) to designate a rare neurosis, characterized by a sudden, irresistible need of sleep, ordinarily of short duration, occurring at intervals more or less frequent and obliging the subject to fall or to stretch himself out to obey it.

"The onset of sleep is more or less violent, preceded by extreme lassitude, by a sensation of cephalic constriction. The eyelids are heavy, the eyes are the seat of light tingling. The

gait is painful and uncertain. Almost always before the patient yields to sleep there is a prodromal period, but this is more or less short and sometimes so slight that the patient is attacked in the midst of his occupation without time to protect himself against accident to which the deep sleep exposes him. When the patient succumbs to sleep, muscular relaxation is generally complete. The lifted limbs fall inert, lines of expression are effaced, and even, according to Féré, the muscles of the face appear paralyzed and the cheeks move with each respiration. Sometimes in place of being in relaxation, the muscles are in a more or less marked convulsive state.

"The general and special sensibilities are blunted and intense and repeated effort is required to momentarily rouse a patient from torpor. The general functions of the organism are slowed. The temperature remains normal.

"During sleep the intellectual functions are variable. Now unconsciousness is absolute. Again, certain elementary psychic processes persist, disclosing themselves by gestures, confused words, and sometimes by somnambulism. There are patients whose consciousness is vigilant and who are afterward capable of relating that which has happened during sleep.

"The duration of the attack varies from some seconds to several hours and is almost constant for the individual case. Awakening is sudden or gradual, corresponding to the length of the sleeping state. The circumstances which determine crises are extremely variable but are sometimes quite definitely fixed for the individual subject."

I last saw the patient by appointment on the 30th of March. While waiting in the office he fell asleep in a chair and two employees who happened to see him remarked that the sleep was of natural appearance. Physical examination was practically negative. He is well developed. There was no evidence of present or past venereal or constitutional disease. The blood pressure was systolic 120; diastolic 75; Urinalysis gave no findings of consequence.

Naturally, in view of the head trauma in particular, petit mal pressed itself obtrusively for consideration but was excluded to my own complete satisfaction.



## REVIEWS

JESUS, THE CHRIST, IN THE LIGHT OF PSYCHOLOGY. By G. Stanley Hall, Ph.D., LL.D., Professor of Psychology, President of Clark University. In two volumes. Boxed. Garden City and New York: Doubleday, Page & Company, 1917. Net, \$7.50.

Those who have read some of the works of G. Stanley Hall, know that there is only one Stanley Hall. He is an all-round thinker. He has a way of writing, of piling fact on fact and theory on theory, which is quite characteristic of him, and one needs but pick up the volumes before us and read a few selected portions here and there to know at once that the author is that inimitable writer and thinker, Stanley Hall.

I knew before-hand, then, that I was to sit down to a luxurious intellectual feast when I opened the volumes of "Jesus, The Christ, In The Light of Psychology." Especially interested in Hall's method of presentation of this subject and what he would have to say was I because I had not long ago read a little work which all who propose to read Hall's new work should read in preparation for it. I refer to the volume entitled "G. Stanley Hall, A Sketch" by Louis N. Wilson, the librarian at Clark University, published in 1914. One should know the author of a work of the kind I am here reviewing. You will appreciate the reading of it so much the more.

Volume I, with its 325 pages, besides the introduction, deals with "Jesus' Physical Personality," "Jesus in Literature," "Jesus' Character, Negative Views," "The Nativity," and "Beginnings of the Supreme Pedagogy."

Volume II, with its 408 pages, has six chapters, dealings with "Messianity, Sonship, and the Kingdom," "Jesus' Eschatology, His Inner Character, Purpose, and Work," "Jesus' Ethics and Prayer," "The Parables of Jesus," "The Miracles," and "Death and Resurrection of Jesus."

Since these volumes are the result of nearly twenty years and more of study of this topic, by a man with a wonderfully keen and analytical mind, a tremendous reader, a prodigious worker, and one who approaches his problem with a background of a thorough knowledge of psychology in all its ramifications, and with a firm grounding in allied scientific fields of endeavor, one may well say that there is no other living man who could have written on this subject in anything like the manner in which Hall has done so.

Hall thoroughly discusses all that is written about Christ, and the probable mental mechanisms of Christ and of those who believed in him and wrote about him. He analyzes all the myths, the magic, etc., built up about the name and life of Christ. He dissects the parables, and discusses the miracles, the death and the resurrection of Jesus. He endeavors to reduce all possible expressions or trends which he finds in Jesus and his followers to their genetic origins, and with the aid of comparative psychology, especially a knowledge of anthropology and childhood tendencies, he points out here and there certain universal trends which are at the bottom of it all. A study of Christ and his followers, therefore, lays bare for us the fundamental nature of what Hall calls the Mansoul. Consequently, he contends, even if Christ never lived and the story built up about him is nothing more than a myth, the meaning of it all is just as true for every one of us, for it discloses some of the basic needs and tendencies of mankind.

Even though it all be allegory or symbolism or myth or figurative rather than literal, Hall says in the introduction: "As a result of all this, I believe I can now repeat almost every clause of the Apostles' Creed with a fervent sentiment of conviction. My intellectual interpretation of the meaning of each item of it probably differs *toto caelo* from that of the average orthodox believer. To me not a clause of it is true in a crass, literal, material sense, but all of it is true in a sense far higher, which is only symbolized on the literal plane." Although personally I cannot subscribe to this statement, since I believe that human freedom and conscious, reasoned control of human life and relations lie in another direction, still, it shows how sympathetically and kindly Hall has dealt with every aspect of his subject throughout this classic.

There is no need to quote from this work, for all of it is written in a flowing style, the thoughts being wonderfully expressed, and so much of it so superb that one can quote and quote without end.

There are a few criticisms which can be offered, such as the absence of a summary in such work as this, presented in such a thorough though at times complicated manner; the employment of so many terms that one will find much trouble in learning the meaning of, such as autism, and the like, unless one happens to have read certain special books or articles; the absence of a glossary of terms; etc. But one cannot have too much fed to one at a single feast.

It is enough to say that even without having read the many works that Hall refers to in his two volumes, one feels free to declare that this is the greatest book on Jesus Christ that has ever been written. One cannot conceive how a greater one can be written.

If you want to know more about what Hall has to say, read it in his two-volume work.

One of Hall's pupils owes it to the average layman to abstract "Jesus, the Christ, in the Light of Psychology," and present the gist of it in plain, easily understood phraseology, so that he who runs may read and understand and be convinced.

May Hall's volume be followed by many other books which will discuss not only Christianity, but religion in general, from the same broad standpoint. Many books on this subject have appeared in recent years. But most of the propaganda work lies all ahead. We must make way for a new religion, better call it philosophy, for the mass of humanity. It is the building up of such a philosophy, instilled into the heart of man from his earliest years, which, if based on sound views and principles, will lay the ground-work for a new world, a new order, a new orientation. Especially is this needed in these terrible and troublous times.

Who will be the savior? Our present religions and systems of education and human relationships have proven a failure in so many different ways, that the mass of humanity are in need of a new world philosophy, a new religion. Where are the scientists? Cannot they come to the rescue?

MEYER SOLOMON.

THE PSYCHOANALYTIC METHOD. By Dr. Oskar Pfister, Pastor and Seminary Teacher in Zurich. Authorized translation by Dr. Charles Rockwell Payne. New York: Moffat, Yard & Company, 1917. Pp. XVIII and 580 with index. Price, \$4.00.

This is one of the flood of books on psychoanalysis which have recently made their appearance as English translations from the German.

Both Freud and G. Stanley Hall contribute short introductions which precede the preface by Pfister.

One can say of this book that, from the standpoint of systematic presentation, it is the best of the many books on psychoanalysis that have appeared in English.

Following a chapter on the definition and history of psychoanalysis, the work is divided into two parts, which deal with the theory of psychoanalysis and the technique of psychoanalysis respectively. The unconscious, repression, fixation, etc. are discussed from various angles.

Chapters II and III show the confusion in the use of the terms and the different concepts of "conscious," "unconscious," "emotion," "will," etc.



Many illustrative cases are scattered through the book. Some of these are impressive, others less so. In most cases the full history, as we should want it, is not given. The facts unearthed and presented by the author, may or may not, in most of these cases, have had anything to do with the causation and relief of the symptoms. In many of his patients, especially those complaining of somatic symptoms, such as pelvic pain, and the like, it seems that the author, who is a pastor, did not take proper precautions to have competent and thorough medical examinations made of the patients in order to exclude local disease with certainty. From a survey of the cases offered as evidence in support of his claims, I find that the author, like many other psychoanalysts, believes that all kinds of peripheral changes, sensory and motor, of a voluntary and involuntary nature, affecting locomotor or vegetative systems, may be present as symbols of unconscious ideogenetic and emotogenetic origin. His conception of the unconscious, which is the conception of the psychoanalytic school, is not that of a complex of conditioned reflexes of all kinds, but of a creative, elaborative power, ideational-like, acting at the moment to produce all sorts of manifestations, even those of the most physiological and peripheral sort, both transient and permanent. Here, too, we find that Pfister, in deciding in favor of psychological as against physiological formulation of "the unconscious," fails to clearly define in what sense he employs the term "psychological." His terms are those ordinarily used for self-conscious, ideational activities.

Although the author differs from Freud in some minor details here and there, it seems to me that such differences, taken en masse, do not prevent Pfister from really being practically a strictly orthodox Freudian.

He shows a full grasp of Freudian literature, which he quotes considerably.

But Pfister does not solve the problems and does not clear up the complications and mysteries that have been pointed out time and again in the Freudian theories.

The translation by Payne has been sympathetically rendered in good English.

Speaking frankly, it seems to me that we would have an unspeakable state of affairs in this already long-suffering and unhappy world if all pastors adopted the extreme and dangerous views of Pfister, especially those of our supposed sexual make-up.

And whether Pfister realizes it or not, psychoanalysis has become for him his real religion.

MEYER SOLOMON.

THE ORIGIN AND EVOLUTION OF LIFE, ON THE THEORY OF ACTION AND INTERACTION OF ENERGY. By Henry Fairfield Osborn, Sc. D., Princeton, etc., of Columbia University, the U. S. Geological Survey, and the American Museum of Natural History. New York: Charles Scribner's Sons, 1917. Pp. xxi, 322; illustrations, 136. 27x16 c. m. \$3.00 net.

In certain essential respects this latest volume from Professor Osborn's "pen" (or typing-machine or dictagraph) is an epoch-making publication in the democratic advancement of general learning—words easily and often said to be sure, but here, at least, not lightly. For the psychologist who reads it comprehendingly it must have several startling and suggestive, useful convictions; to the average anthropologist it must be almost like an indispensable preliminary text book; to the untechnical but intelligent lawyer and business man and school-ma'm and physician whether in war-work or "safe" at home, it must be one of the absorbingly interesting biologic volumes of a lifetime, an earnest of the vital clutch which all science worth the cost of its publication even, may have on the unscientific human brain and heart. And clutch on the heart this volume has, as well as on the less plastic neopallium! It lends its reader a suggestion of rest and fixation in an evanescent and worrisome life, orienting him; it lends him a joyous peep, and more, or pretends to do so, into his real brute nature, into the certain depths of the everlasting Whence?, the human query only less incessant and insistent than the more certainly soluble Whither?

Taking it "at its face," without search into the cosmology or into the technical vertebrate paleontology which it throws so interestingly on the shadow-screen, this book is as important for the elementary technical student of biology as it is to the always eager Public, keen for knowledge when they can have it fed to them in varied and always pleasant tastes. It may prove a well-integrated philosophy of biologic life, even, as satisfying to the psychologist searching ever for continuity, as to the physicist whose concept "energy" continually broadens and deepens and aspires into the "monism" which must remain the goal of both of these opposed yet complementary modes of thought. Chemistry here too gets new sanction, as in the works of Mathews and of Henderson (from which Doctor Osborn quotes), a sanction which tends to make the old-time words materialism and idealism but as aspects of a Fechner's arc. (Any internequine mediaeval contradiction between them seems now as impossible as the survival of that Kaiser-like king of Earth's destructive mechanisms, the carnivorous *Tyrannosaurus rex* Osborn.) The book appeals, that's all, to all sorts and

conditions of intelligent women and men,—while to the children the very faery stories of the bed-time fire-glow must seem outdone. And how the “smart” Sunday-newspaper artists might double their salaries!

The publishers’ advertisement tells the truth as advertisements do more and more often: “From latest discoveries Professor Osborn pictures the lifeless earth and presents a new conception of the origin and early evolution of living forms in terms of *energy*. In the spirit of modern physics, chemistry, and biology, this is a reply to Arrhenius’ derivation of life from space, to Darwin’s doctrine of chance, to Bergson’s *élan vital* or internal guiding force. It gives evolutionary thought another direction. The wonderful and beautiful succession of life from its dawn to the time of the appearance of man is richly illustrated and philosophically interpreted.”

Morphology, as tectology at least, here gets a woful, hard knock; perhaps it will help to awaken with its modernism gross anatomy and morphology out of their age-long doze. Here it is shown that the vital guiding thread is kinesis, dynamism, change, and not formed “matter”, form, vaguely conceived as more or less fixed. Old Bishop Wilberforce himself, (whom Huxley argumentatively slew) would almost be convinced that the interesting monkey was (as no one believes) a most proper and even a most orthodox forebear.

The book has an essential introduction, eight chapters, and an important appendix. The titles of the former run thus, divided up under two parts, “the adaptation of energy” and “the evolution of animal form:” I, Preparation of the Earth for life; II, The sun and its physicochemical origins of life; III, Energy-evolution of bacteria, algae, and plants; IV, The origins of animal life and evolution of the invertebrates; V, Visible and invisible evolution of the vertebrates; VI, Evolution of body-form in the fishes and amphibians; VII, Form-evolution of the reptiles and birds; and, VIII, Evolution of the mammals.” The appendix suggests in seven notes some technical but very important new matters from A. P. Mathews, Loeb, Gies, Ostwald, etc.; and gives a taxonomic table of animals. An up-to-date bibliography and a fairly full index both of authors and of topics complete the book.

It is hinted that a complementary volume will appear (if the fashionable danse macaber does not prevent) which will carry the argument into human life more explicitly than is done in the present work; and in treatment quite unlike (we may well suppose) that of “Men of the Old Stone Age,” of “before the War.”

In the trite philosophy of the circus side-show hawker, this popu-



larly attractive treatise has to be seen to be appreciated. But there is scarcely a reader of the JOURNAL who would not find his time's worth, as well as the worth of his money, in the reading and the owning of this book. It is even more than it seems; it is like a presaging lecture made delightful with fun and good humor—though the dull and superficial mind forever yet confuses good humor with superficiality and snobbery with profundity and real dignity. The inherent interest of the subject makes the book delightful, but no one with even a tinge of insight will fail to see it as a potentially important contribution to the philosophy of Life, of Earth's stupendous ventures, of man's whence? and whither? It is Huxley outdone in "human" interest at least. I have no hesitation in thus frankly praising the book (and in trying to suggest its real meaning rather than its contents in detail) because I think it a book of the years long to come in the history of the popularization of science, the most certain and shortest road to scientific evolution. If opinions differ as to its radicalism, its cold scientific "certainty," the opinions will be for a time at least only opinions; and an "inspiring" book is not necessarily able to inspire a mere reviewer. But every reader must finish it enthused.

GEORGE V. N. DEARBORN.

*Cambridge*

## WAR BULLETIN

### AN UNPRECEDENTED OPPORTUNITY FOR WOMEN

BY EMMA WHEAT GILLMORE, M. D.

CHAIRMAN COMMITTEE OF WOMEN PHYSICIANS GENERAL MEDICAL BOARD,  
COUNCIL OF NATIONAL DEFENSE

The same year that gold was discovered in California, a lone pioneer received the first medical diploma which the United States had issued to a woman. Other colleges shortly followed the example of the one which had opened its doors to Elizabeth Blackwell, and today over fifty co-educational medical schools admit women upon the same terms as men.

There are more than 25,000 American physicians in military service at this writing, and the Council of National Defense is undertaking, through the Volunteer Medical Service Corps—an organization which has President Wilson's approval—the task of classifying the qualifications of ninety thousand more. Of these, about six thousand are women, less than one-third of whom have registered with the General Medical Board.

Women of the profession, unless our qualifications are standardized and on file, can you not see that we are an unknown quality and quantity as far as the Government is concerned? In spite of the overwhelming difference in number—6,000 women and over 100,000 men—and regardless of the fact that over twenty-two centuries have passed since Hippocrates wrote the immortal Oath and only sixty-nine years have elapsed since women entered the medical profession, the Volunteer Medical Service Corps has invited them to membership with the same impartial cordiality as it has the men.

During the last week in August application blanks for the Volunteer Medical Service Corps were mailed in franked envelopes to all legally qualified men and women in the United States who were not already in Government Service. Presumably a number of women have been overlooked because many of them are not members of medical societies, but this will speedily be corrected if a notification of the omission is sent to the Volunteer Medical Service Corps, Council of National Defense, Washington D. C.

Meanwhile, medical women who possess a vision will see in

the Volunteer Medical Service Corps an incomparable method of organization which will register their qualifications and place them in an identical coded class system with men physicians. This Corps is in reality an ideal procedure for mobilizing the military forces of our country for selective medical war service. Incidentally it will place loyal and patriotic medical women by the side of those men who are willing to give themselves. Even though all of them are not elected to membership, their names will be on file with the Government as willing to serve as far as their strength and capability will permit, and no one can point a finger at them and say "slacker."

Will a page be turned over in the history of American Medical Women upon which will be written the qualifications of 6,000 of them, matching that group of English physicians known as the Scottish Women's Hospitals, which was so perfectly organized that they were able to hand over to their Government a constructively organized body of professional women for military service? Or shall we continue, as we have done in sporadic groups for the past 69 years, to demand recognition of men and at the same time neglect to unanimously affiliate with them in recognized medical societies, and to withhold our influence both with pen and vote when medico-social and medico-political and medico-scientific issues are at stake which shake the very foundation upon which medicine rests?

The body politic of the civilized world holds a prominent place for the profession of medicine in the near future. Are we to have a hand in shaping it? The Volunteer Medical Service Corps is big with promise for women of the medical profession if we take advantage of it to put ourselves on record. The response which the Council of National Defense receives from women who apply for membership will tell the tale as to whether they have or have not grasped and taken advantage of the unprecedented opportunity which this world's war for Democracy has opened up for them through the medium of the Volunteer Medical Service Corps.

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#### NOTE

The conclusion of *THE ILLUSION OF LEVITATION*, by Lydiard H. Horton, will appear in the October issue of *THE JOURNAL*.



TABLE V

## DISTRIBUTION OF VARIATION TOTALS FOR DIFFERENT DIAGNOSES

V. T.	Normal	Not psychotic	Retarded or sub-normal	Feeble-minded	Psychopathic personality	Manic-depressive	Psycho-neurosis	Dementia-praecox	Alcoholic psychoses	Epileptic psychoses	Syphilitic psychoses	Unclassified paranoid psychoses	Unclassified psychoses	Grouped psychoses
0	2	1			1		1		1			1	1	3
1	12	2		1	3		1							
2	17	5		3	6				1					1
3	28	11		9	3	1		2					1	4
4	50	6	1	13	4	1		4	1	2	1	1	1	9
5	77	13	1	31	5	2	1	1	1	3	1		3	9
6	61	20	5	33	6	1	2	4	2	1			3	9
7	71	17	9	39	3		2	5	2	2	2	2	8	22
8	50	19	6	50	4	3	1	7	2	2	1	2	11	25
9	46	14	10	35	1		2	6	2	2	1	1	6	20
10	37	15	7	49	1		3	4	4	1	2		5	17
11	23	6	5	23	2		1	3	7	2	1	1	4	18
12	13	8	4	21	2	1	3	1	3	1			5	11
13	4	1	3	27		1		5	3				2	10
14	5	1	3	17		2	1	3	5	1	1		5	16
15	1	4	5	14				1	1	1			3	7
16	2	2		7					3		3		3	10
17	2		1	2				3					1	4
18	1							2	2	2				6
19				2					1	1			1	4
20	1			2				2	2				1	6
21				1								1		1
22							1		1		1			2
23														
24				1									1	1
25									1					1
26														
27		1						1						1
No. of cases.	503	146	60	380	41	12	19	54	43	21	15	8	65	218

## ERRATA

The author has called attention to several errors in the printing of the article "Point Scale Examinations on the High Grade Feeble Minded and the Insane" published on page 77 of the June number of the Journal. We give below a list of corrections, with the request that subscribers alter their original copies to correspond thereto.

We have also reprinted, at the request of the author, Table V in order that this table may appear in its entirety upon one page.

- Page 78. Lines 13, 14, 15: read after 16, 24, 16 and 24.
- Page 85. Fourth line from bottom of page: for "(p. 00)" read "(p. 84)."
- Page 87. Lines 9 and 10: read after 6.9 and 6.4
- Page 89. In Test 5, score (38-45), Test 9, score (38-45), Test 10, score (25-30), Test 10, score (31-37) the figure 2 should not be in italics: Test 11, score (46-52) for "4" read "3".  
At the bottom of the page, add a row to the table reading:  
17 0 (100) 0 (100) 0 (83) 0 (70) 0, 1 (73)
- Page 90. For "76-7" read "76-79."
- Page 96. Number Plates: Upper "Plate 1 (a)," Lower "Plate 1 (b)."
- Page 112. For "Test No. (b)" read "Test No. 7 (b)"
- Appendix B. It was not the intention of the writer, of course, to make it appear that the discussion of one test belonged under the "General Rules" for grading the preceding test.

# THE JOURNAL OF ABNORMAL PSYCHOLOGY

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## ORIGINAL ARTICLES

### THE EMPATHIC INDEX IN THE DIAGNOSIS OF MENTAL DISEASES

E. E. SOUTHARD

IT is safe to say that *Ego* and *Alter* are about as far away from each other as ever. The *Socii*<sup>1,2</sup> are not thoroughly explained on Consciousness of Kind.<sup>3</sup> There is much that points to the downfall of the Economic Man or of any other Humpty-Dumpty type built more on identities than differences. The whole brood of the humdrummers who take men and women as sufficiently alike for all practical purposes is a brood bound to degenerate and die out. I have even read in a book on Guild-socialism<sup>4</sup> that provision would be made for geniuses in the regenerate world, though I must say there was less to the point concerning the insane and the feeble-minded. A little more attention to *Ego* and *Alter*, perhaps more especially to *Ego* and its types (*e. g.* by thinking one's own selves over in the memory procession), would do both the capitalist and the socialist humdrummers a vast lot of good.

The immediate object of this paper is hardly to contribute much to the large question of human interest, the interest the *Socii* are found to take in each other and then translate into action. I wish to borrow from aesthetics and psychology a term for this human interest, a term coined, I believe, by Titchener, *viz.*, *empathy*.<sup>5</sup> I wish to study our relations of empathy with the pronounced psychopaths, hoping to gather therefrom some points of service in the larger matter of human interest in the Fellow in general. The term *empathy*, happy though it seems, is not at all the real issue. The term itself was built up designed-

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ly on the analogy of the term *sympathy*. I seek to set forth what I conceive to be implicitly recognized by all, *viz.*, that there is an attitude of empathy quite distinct from the attitude of sympathy. The world takes, in criminals, or in races or nations, a human interest often termed *sympathy* but actually of another sort.

The existence of this human interest or empathy depends on how far we *read or feel ourselves into* the person, group, nation, or race. I say "read or feel *into*" instead of "*in*", so that by doing a little violence to the idiom the interior aspect of the process may be stressed. This process is one of empathy, not always of sympathy. Sympathy itself is of course an ancient and beautiful term. Sympathy meant feeling with another, like feeling,—but the feeling *with* did not always mean a translation *into*, nor did likeness go so far as identification. In fact the sympathetic person was often chargeable with being a bit superior to the person sympathized with. *Sympathetic*, the adjective, seems to have built up—so philologists say—on the analogy of *pathetic*: that is, *sympathetic* ought to be *sympathic*, as indeed in some languages it becomes. And a little of the *pathos* of *pathetic* has usually clung to *sympathetic*. As for empathy, however, the adjective *empathic* seems to be more suitable than *empathetic*, if only because the latter would even more damagingly suggest *pathos*.

Sympathies and empathies may occur together or apart. Perhaps more often they occur apart. We sympathize, we say, with the sorrows of Belgium. But it is a question how thoroughly we *empathize* with the Belgians, how thoroughly we can, here and now in America, read or feel ourselves into their plight. We have not memories enough for that level of imagination. Emotional attitude is perhaps the most important part of sympathy. Quite another thing is that effort of imagination and that assumption of a conscious attitude which are required in empathy.

We do not sympathize with the considerable sorrows of Germany, say of the Kaiser. Can we not empathize in their situation? Can we not readily hark back to perhaps our selfish childhood (or to the selfish childhood or youth of some other) and read ourselves (or at one remove) into the Teutonic situation?

Germany says she is defending herself. Do we sympathize with her? Yes, perhaps, whether we think she is defending herself or whether we think she merely thinks she is defending her-

self. The sympathy is an emotional attitude which we do or do not assume. How many Americans can really empathize the Teutonic defense-reaction? How many can read or feel themselves into that felt passivity? Yet, if diplomats do not, the peace negotiations will be for long at cross purposes.

But what sort of process is empathy? It is obviously not a mere sensation or a mere pleasure-pain feeling. Historically, the idea took definite shape in connection with certain illusions of space perception and certain aesthetic reactions. It can hardly be a mere process of association, except in some very broad sense of that term. Empathy must clearly bear some relation to one's power of imagination. Is it emotional? If we can realize ourselves in other persons, races, or even animals or inanimate objects, clearly a good deal of kinesthetic "set" will be brought about, and there may well be emotion set free or modified.

It is plainly desirable at this point to look more narrowly into the usage and value of the idea, in which I shall follow Titchener. Thereafter, I shall try to state what different empathies the psychopathic types of person make in us, largely as a practical matter of diagnostic aid, but with an eye on more general implications.

Titchener's first reference to empathy is to its possibly explaining certain spatial perceptive illusions, *e. g.* illusions of the Müller-Lyer type. By an empathic process we are conceived to read ideas into the figures. "We read ourselves, or feel ourselves, into the lines of the figure." "We tend, just because we are human beings, to humanise the forms about us; a column seems, according to its proportions, to stretch up easily to its load, or to plant itself doggedly under a too heavy pressure,—precisely as a man might do." With respect to the special problem of the spatial illusion-figures, to be sure, Titchener prefers to explain them chiefly on another ground, *viz.*, that of physiological mechanism expressed in eye-movements, "tempted" as he somewhat teleologically says, to continue beyond their proper point or on the other hand "checked." However, the general theory of spatial illusions may stand, empathy in the sense of the reading-in of associated ideas (*Einfühlung* of Lipps.<sup>6</sup>) is at least a subordinate factor in most instances, and the general disposition or "cortical set" is another such operative though subordinate factor.

Empathy is however far more than a subordinate factor in

attitudes taken merely to space perceptions of visual nature. Empathy, as Titchener more generally defines it, is the name given to "the process of humanizing objects, of reading or feeling ourselves into them." Empathic processes are prominent in visual imagination, not necessarily as primary features, but as attendant, supplementary, interfusing processes.<sup>7</sup> One of Titchener's observers reported, as to his image of a fish, "*cool, pleasant sensations all up my arms; slippery feeling in my throat; coolness in my eyes; the object spreads all over me and I over it; it is not referred to me, but I belong to it.*" This fish-image was an "image of imagination," not a "memory-image," to use Titchener's distinction. The fish-image was here *not* aroused with personal reference to definite fishing-excursions of the past. Set before a blank wall, the observer did *not* rove with his eyes, move restlessly, and strive to bring up filmy and vaporous past memories, sometimes losing his visual imagery altogether and filling out the gaps by assuming fisherman's movements or even imitating the motor dodges of the fish itself. On the other hand, the observer was in a state of motor quiescence, fixated the fish steadily on the blank wall, and got a substantial, three-dimensional, perhaps appropriately colored object in imagination, a new, strange, unremembered, personally detached, imaginary fish—to which were added the empathic associations "spreads over me and I over it," etc.

The imagined fish, thus solid, stable, and empathically supported, now stands at the focus of consciousness. Shortly all sorts of meaning may enter (the fish of *Ixθύς* or Christian theology, the sacred codfish of Massachusetts, or even some reference to the observer's old fisherman's luck of some past day); but all these meanings and references are aside from the image and represent merely a bit more of the flow of consciousness. The fish-image may even start a train of feelings of bodily discomfort and leave a kinesthetic sequel quite as marked as any got by telling a *true* fish-story. But, as is well known, *true* fish-stories rarely do get told, so mobile, foamy, and unsubstantial are the memories of any fisherman. How much easier it is, even if you are a poor fisherman or no fisherman at all, to sit down and build an immobile, firm-fleshed, and solid fish-image, the perfect basis for a glorious yarn.

One may thus, with Titchener, prefer an active to a passive account of the imaginative consciousness.<sup>4</sup> The imaginer plans moulds, constructs, works up, applies skilled labor—the emotive



side of the process being all the while rather vague and pretty much a matter of general disposition. Indeed there may be, according to Titchener, more emotion attached to the varying success or failure of the process itself (whether one is achieving a trout or a hornpout, though this is not Titchener's example) than any emotion intrinsically related to the fish-image itself. And "meanwhile, also, all sorts of empathic complexes have formed about the focal processes, vivifying and personalizing the partial products of the constructive effort"—an effect of the constantly integrative tendency of consciousness along the specific lines of the imaginer's disposition, capacity, and experience.

But empathy is not merely a process of humanizing visual perceptions or visual imagery. One may "empathize," if this term be allowed, in respect to many non-visual matters. Titchener himself speaks of *motor* empathy.<sup>5</sup> This was in the matter of so-called "imageless thought" and the analysis of James' feelings of relation. The polemic is here of no consequence. James had urged that "we ought to say a feeling of *and*, a feeling of *if*, a feeling of *but*, and a feeling of *by*, quite as readily as we say a feeling of *blue* or a feeling of *cold*." Titchener thinks not, and finds that, though the feelings of relation occur and can be got out in isolation and at full strength, they are really not elementary processes, but are kinesthetic complexes.<sup>6</sup> They are perhaps reduced, degenerate, vestigial remains of ancestral motor attitudes.<sup>7</sup> According to Titchener, "in the author's experience, the feelings of relation are never simple. They are matters of motor empathy; the relation is acted out, though in imaginal rather than in sensory terms." He goes on to say, "sometimes the kinesthetic images are accompanied by a visual image, itself usually symbolic; sometimes they are strongly colored by pleasantness-unpleasantness." It is worth while pointing out that neither the symbolic nor the emotional components here are necessary parts of the empathic process taken in and for itself.

Empathy, it is plain, is more intellectual than emotional. Though empathy readily leads the sympathies, it may well stop at a coldly rational view of its object, pleasing only because it fits the thinker's general views and habits. The human interest of sundry newspaper stories is often a matter of empathy rather than sympathy. There is an emotion, the sort of emotion, namely, that human interest and will imply, but this need not be

connected in the slightest with any genuine altruistic feeling or sympathy for the heroine or villain of the headlines. But is not this a greatly extended interpretation of the term *empathy*? Should it not be limited to aesthetics and art education, in accordance with the initial usage of *Einfühlung* in Lipps' *Raumessthetik* in 1897; or as popularized by Münsterberg in his *Principles of Art Education* in 1905? Vernon Lee gives in a small book the stock examples of empathy, devoting no less than two chapters to the topic; and numerous illustrations are given by Vernon Lee and Anstruther-Thomson. But the idea of *Einfühlung* and the ideas involved in the somewhat greater term *empathy* devised by Titchener are clearly not to be impounded for art alone.

In fact, a moment's reflection will show how many motives in human thought are implied in this idea of reading or feeling oneself into an object. Clearly animism is often a kind of empathy, in which one perceives in other men, animals, plants, natural phenomena, and a variety of objects a personalizing or personifying factor, namely, the soul. In fact, much of the wide sweep of many philosophical doctrines is in one sense based on reading oneself into portions or the whole of the world. Hylozoism has its empathic suggestion. The Leibnitzian monads are not innocent of the charge. The whole question of immanence and transcendence has some bearing on the point. Ancient doctrines of magic, of fetishism, of nature worship, of shamanism are not unrelated. Anthropolomorphism and sundry theological problems in personality lead in the same direction. Whether in more modern days the polemic of Avenarius against all introjection theories of Berkeleyan type has something to do with the empathy problem, I may leave to specialists in Avenarius. The interesting term *eject*, contrived by Clifford for some one else's thought in the terms of a thinker's unconsciousness, was employed by Romanes, and we may safely regard this *eject* idea as closely related to our topic.

Still more modernly speaking, we might inquire how far empathy is related with the concept now identified with the Freudians, namely, that of narcissism, sometimes abbreviated to narcism. This term, apparently chosen by Näcke upon a suggestion of Havelock Ellis, and considered for the first time elaborately by a Freudian, Rank, in 1911 (also by Freud, 1914), is a conceived state or phase of development in which a child regards everything in relation to himself and not as related with other things. According to the Freudian doctrine of successive

phases of development in human life, the narcissistic phase follows the auto-erotic phase and precedes (perhaps somewhat fuses with) the homo-sexual phase that antedates the so-called achievement of heterosexuality. But what is narcissism if not a species of reading or feeling oneself into an object or objects, in such an intimate fashion that the surrounding environment is virtually taken as a part of the self? But if it be a poor sort of empathy which leads oneself only to approve, appreciate, and fraternize with oneself, then the higher homosexual phase even more certainly looks like a form of empathy, a form in which, so to say, the Narcissus Ego discovers in some Alter something into which he reads, feels, or empathizes himself.

So much may serve to indicate the wealth of philosophical and psychological ideas that flow in and about this notion of empathy. Though the concept at first sight seems a very special concept of aesthetics and largely dependent upon kinaesthesia, empathy eventually spins a web of relations with all sorts of philosophical concepts from solipsism, on the one hand, to pantheism on the other. It is not too much to say that ideas of this sort stick very deeply into life, and that the whole front that we present in our practical human interests (such as the time-honored question of egoism and altruism) depends upon what stand we take on this matter of reading oneself into another object.

Man has the defects of his virtues and, by virtue of becoming complex, has run the danger of a variety of losses and twists that lower forms of life escape. By becoming complex in physicochemical structure, the brain (to say nothing of all the auxiliary organs and tissues that supply it with energy in one form or other) has run the danger of diseases and defects, that we psychopathologists think cause a large minority, if not a majority, of human ills. Suppose it could be shown that the Hohenzollern, on the one hand, or the Bolsheviki, on the other, were actually victims of psychopathic defect: Would it not profit the world to gain a deeper understanding of psychopathy and a quicker capacity for catching its signs? In fact, some psychopathologists believe that a keener sense of the psychopathic on the part of the world will do away with many of the evils of false leadership that now drag us down.

How shall the world gain this keener sense of the psychopathic in its members, especially in its leaders? One touch of nature makes the whole world kin, and the empathic index for



these kindred fellows is clearly high. We read ourselves or feel ourselves into these kindred persons on the basis of their resemblance to us—their touches of nature. I think, therefore, we should initiate researches upon this matter of empathy in the psychopathic. That is, we ought to study, for eventual transfer to our normal fellows, the extent to which we can read or feel ourselves into the frankly insane or psychopathic. Analyse as we may by the finest technical methods the different parts of the mental life, and enumerate and measure as we may these elements and compounds in the psyche, we shall not readily get out of these *dissecta membra* of the mind any standard of normality for our patients. In fact, the psychologists can amply show, in the regions thus far subjected to the experimental method, that the psychopathic patient falls in his reactions well within normal curves of distribution. In fact, the metric psychologist too often believes that there is no special psychopathic problem from the standpoint of psychology. This view is much like that of a physiologist who might conceive that all the problems of pathology could be solved by physiological methods. Meantime, the sciences of pathology and of psychopathology exist and unfold.

Should we not, then, make some use of the off-hand and global view of a man which a reasonably normal fellow finds himself to possess? When the psychiatrist operates medico-legally as an alienist in court, he is quickly made aware by the questions of the attorneys on both sides, by the attitude of the jurymen, and even by the questions and rulings of the court, that much depends upon the reading of the self (by the attorneys, jurymen, or judges) into the plaintiffs and defendants. What we here do practically, ought to be studied theoretically.

Upon what should we rely? The so-called unconscious of the diagnostician, or his conscious reasoning power? Decidedly, so far as possible, the latter. Provided that a man has a right to be a psychiatrist at all, he is probably able to empathize successfully,—make a Cliffordian eject of his fellowman, homologize himself with this man, animate him, as it were, with his own type of soul, and see his own reflection in his fellow in difficulties. Of course, there are plenty of perfectly shrewd and keen persons who belong, let us say, more in surgery than in psychiatry,—the men who analyse and perform well, but who are not supreme in synthesis. Rather than be a shrewd but non-synthetic unit, I personally should somewhat prefer, if I were going to be a

psychiatrist, to be a simple type of person. I should want to be a rather naïve person, who could rely upon his judgments as uncolored by prejudice (save by native and communal prejudices: ideals of the tribe or of the market-place), and who could make a judgment of his fellow man pretty well in accordance with what the Freudians conceal in their term *Unconscious*. In short, though it is finer to be synthetic than to be naïve, it may prove practically better to be naïve than to be analytic. (Perhaps this digression may explain the odd and generally recognized fact that psychiatry is divided amongst rather naïve and inexplicably simple representatives and other men of extraordinarily complex and ratiocinative persons. Accordingly, a research in the empathic index of psychopathic persons as considered by psychiatrists would have to take into account the psychiatrist himself and possibly load the results of the research one way or the other according to the capacity of the examiner.)

How far, then, can we and do we read ourselves into the insane and psychopathic? For the moment, I have no plan of presenting set statistics on the matter, although we have been collecting some data at the Psychopathic Hospital along the line. The point of this paper will, on the other hand, be to bring out the general nature of the problem by considering some rather obvious features in the clinical diagnosis of certain genera in the great groups of mental disease.

In approaching the psychopathic, the psychiatrist may put the question about empathy in a variety of ways. Following is a small number among the probably infinite variety of ways in which the question may be put:—

How far can you read or feel yourself into the patient?

Can you identify yourself with the patient?

Disregarding your sympathies and abhorrences, can you empathize with the patient?

Reversing the "giftie" proverbially craved, can you see the "ither" as you see "yersel," *i. e.* can you see yourself acting under some circumstances precisely as he is acting?

Can you put yourself in his place?

Conceding *nil* absolutely *alienum*, can you see the patient, not as similar to you merely, but as identical with you in your probable reactions?

Is the likeness to your own probable reactions specific rather than generic?

Does this patient's reaction seem intrinsically human or is there something extrinsic and non-human about the reaction?

Is this "just what a child would do?" (if so, empathic test positive, because each of us readily empathizes with a child).

Is this "the touch of nature?" (Empathic test positive, because empathy is precisely making the world kin).

Is this "just what anyone would do?" (Empathic test positive).

Is this "just what I would do if I were sick?" (Empathic test positive).

Is this "just what I would do if I were crazy?" (Empathic test probably positive, because most of us early contrive an idea how it would be to be crazy, an idea usually built on lines of our own, *i. e.*, normal experience).

There are some eleven major groups of mental diseases, according to an analysis of Psychopathic Hospital material recently made. I shall speak with injurious brevity concerning the empathic test or index in these groups. I have throughout spoken of the empathic index because I feel that in the long run degrees of empathy would be established for many diseases and that the question "How far can one empathize" will eventually be susceptible to a metric or at all events an ordinal division. For practical purposes in our work so far, the answers concerning empathy reduce for the most part to positive and negative. I do or do not empathize with this particular patient. Now my view is that the empathic test is an indicator or index of diagnosis between certain groups of mental diseases and indeed amongst the sub-divisions of certain groups.

Adopting for convenience the diagnostic order above referred to, I would proceed to Group I, the Syphilopsychoses, or mental diseases of the syphilitic group. By and large, the psychiatrist and the layman will empathize positively with respect to most of the syphilopsychoses. So far as the meningitic, vascular and gummatous cases are concerned, the mental symptoms are usually so little in evidence in many instances, that the examiner treats the case as "sick" in the sense of ordinary somatic disease and he sees nothing in a patient's reactions with which he cannot fully empathize.

With respect to general paresis, it might be inquired whether at least the excited and grandiose phase of general paresis would not show a low empathic index. The demented and depressive types of paresis do not excite one's feelings of a lack of empathy. Dementia may not excite empathic feelings in us one way or another, just by reason of the lack of reaction. The abysmal



depth of depression that we sometimes find in the paretic remains nevertheless often quite empathic with us normal beings. The depression is merely exceedingly deep, but is after all, just such a depression as one might feel.

But is it not probable that the grandiosity of the excited paretic shall afford instances of negative empathy? On the whole, I do not find that my own empathy is as a rule low for this paretic megalomania. Possibly my negative judgment is disarmed by the facial expression and whole motor attitude of the paretic, which is likely to be perfectly consonant with the grandeur felt, also I perceive that the paretic is physically sick and tremulous, and with it all any tendency to a negative empathy is pooled in the idea that after all this, though quite out of the ordinary range, may nevertheless run quite in the normal direction of feelings possible to the normal man under certain circumstances.

With respect to Group II, the Feeble-mindednesses (or what I have tried to term, the hypophrenoses), I find the empathic community of feeling is distinctly present in the majority of us. To be sure, some of the idiots and low imbeciles with set expressions of a gargoyle nature, may give a negative empathy. It may be that throughout the hypophrenic group, our sympathies are so much in play that it is difficult to make a cold-blooded rational reaction, such as the true empathic decision must be. On the whole, the reactions of the feeble-minded, both singly and in groups, strike the observer as of the happiest. Nothing surprises the uninitiated more than to find how happy the inside of a school for feeble-minded is. I find little of diagnostic value in these empathies.

With respect to the epileptics, Group III, I conceive that quite another situation holds. Epilepsy is the *morbus sacer*, the disease of mystery. Whether the reaction be occasionally one of pathological politeness so called, or whether the phase of unreasonable irritability rubs us the wrong way, whether the unaccountable occasional amnesia and the queer optimism of the epileptic contribute to the result, it is impossible to estimate. On the whole, however, the epileptic seems to me to rouse not only less *sympathy* than the feeble-minded person, both single and *en masse*, but it also proves far less possible for the normal man to read himself into the epileptic in the empathic manner. Possibly this is a somewhat personal reaction on my own part. Research should be undertaken in the matter. . Comparative

studies might well be made in the global reaction of empathy which the epileptic makes as against what the hypophrenic makes.

With respect to Group IV, the group of mental diseases due to alcohol, drugs and poisons, we find our empathic index, as a rule, high. Whereas our sympathies may carry us in either direction, our empathy is pretty nearly positive. On the whole, what the alcoholic does is something like what any of us might do. The variation of experiences of the alcoholic is such that apparently we can all read ourselves into the alcoholic situation somewhat. Even were the psychic phenomena of alcoholism in themselves so queer and outside the range of the normal altogether, yet the frequency of these phenomena would give the normal man a high empathy for the alcoholic.

The morphinist, on the other hand, is, so far as I have been able to observe him in a small experience, far less the object both of sympathy and far less positive when it comes to the empathic test. There are, however, within the group of the pharmacopsychoses some empathic tests. I should say that on the whole, the victim of delirium tremens yielded a positive empathic test in many instances, when victims of the companion disease alcoholic hallucinosis yield a lower index. The fact that in alcoholic hallucinosis, a perfectly clear consciousness gets split with hallucinatory data means of course a situation that seems far less consistent than the situation in delirium tremens. The victim of delirium tremens is, as a rule, a sick looking man, with tremors, flushing and sweating, and he somehow seems to us the more or less appropriate vehicle of his hallucinations. But as to this minor distinction of sub-groups, it would not be well to speak without a statistical and long-standing analysis.

With respect to the poison cases, nothing special need be said.

With respect to Group V, the mental diseases due to manifest focal brain disorder, I would say that the victims of this sort of mental disease, like those of the somatic or symptomatic group—Group VI,—strike us as on the whole sick persons. They strike us as not unlike what we ourselves would be under certain circumstances. The phenomena strike one as quasi-normal, judged by the standard of diseases in general. Even phenomena of the vascular (arteriosclerotic) group, with their physical accompaniments of paralysis, for example, do not strike us as anything but quasi-normal.

With respect to the seventh or presenile-senile group—Geropsychoses—I find that the empathic index is in many instances much lower than I should naturally think that it might have been. The fact that the world, as it were, confronts the oncoming of a certain dementia as a necessary feature of old age ought to give most of us a high empathy for the condition. Possibly the true simple dementias due to plain wasting of brains do so give us this high estimate of the quasi-normality of the clinical phenomena shown. However, amongst the presenile psychoses with their curious hypokinetics, and amongst some of the presbyophrenias with their strange falsifications, I find numerous instances in which the empathic test comes out negative. We do not read or feel ourselves into the situation presented by these patients, whatever may be our sympathy for the obvious fact of the old age.

It is with the next two groups—the eighth and ninth groups of schizophrenia and cyclothymia respectively—that the differential value of the empathic test, according to my prediction, will be found greatest. The schizophrenic (*dementia praecox*) group is by the very nature of the dissociations, which are very prominent in it and which have given rise to Bleuler's designation (schizophrenia) a group of cases in which the phenomena are by hypothesis strange. Somewhat less strange in the hebephrenic subgroup are the phenomena of catatonia and many of the paranoids approach the apex of strangeness amongst the whole range of psychopathic symptoms. The dissociation, splitting, the schiztic character of the deliverances of the victim of *dementia praecox* give one an impression of queerness that probably no other phenomena can give. This impression is certainly confirmed by the details of analysis, say of a given set of actions or grimaces, or a manuscript letter, but what we are studying here is not so much the results of analysis as the global and total effects produced by the patient.

Without here bringing statistical data to bear upon the point, I venture the prediction that an offhand diagnosis of *dementia praecox* can often be made (as against the cyclothymic) from the general impressions conveyed by the patient. In fact, the phrase "general impression" is nothing but a phrase for the basis of the empathic test. Many a tyro in psychiatry has wondered how his hospital superintendent, with his brow furrowed with the care of ways and means, can possibly arrive at a rapid diagnosis of good or evil prognosis in a man whom he is allowed



to study with but a passing glance. The tyro's analytic work, running to many lines or pages of record, fails to give him this general impression, fails to give him data upon which to make the empathic decision. Skirting widely about the whole complex of phenomena, the old medical superintendent now become far more worldly wise than he is psychiatrically erudite, is enabled to come at a correct conclusion. It is perhaps on this basis that "age is for counsel." My point would be that by a study of these global effects, the young man may become prematurely or preternaturally early a counsellor in these matters. Perhaps the reason why the law wants physicians to wait five years after graduation before their psychiatric opinions are legally of value, is because the effects of symptomatic analyses are often so inadequate. Naïveté, as above said, is often superior to analysis. What we crave is, however, neither naïveté nor analysis, but a synthetic general result of a reaction made upon the analytic data.

Accordingly I would set as a research problem in the empathic reaction, the whole field of schizophrenia (*dementia praecox*) and cyclothymia (manic depressive and similar psychoses).

With respect to Group X, the psychoneuroses, these reactions are so nearly normal in most instances, that it is hard for the common man to consider them in the field of "insanity" at all. He hardly wishes to call them psychopathic, yet amongst the reactions of hysteria are some of the most extraordinary phenomena that the world sees. Nevertheless, the empathy is to my mind very frequently positive despite the extraordinary nature of the things that happen. Somehow the glove or stocking anaesthesia or even the hemianesthesia strikes one naïvely as a good deal more likely a thing to happen than the less regular phenomena of true organic nervous disease. Again the somnambulisms and automatisms of this group have something distinctly empathic and quasi-normal about them.

I need not consider Group XI, the psychopathoses or psychopathias in general particularly here, because amongst this rag-bag group of psychopathies are diseases which lean toward several of the others; there are psychopathies which suggest feeble-mindedness, there is an epileptoid group of psychopathias, there are many with a schizophrenic or cyclothymic trend, to say nothing of the great group of hysteroid cases.

It may well be, however, that a study of the global reactions intended to secure data for the empathic test may help to

move many of the psychopathias out of this residual group into other and better established groups, or even into new groups.

Thus I bring to a conclusion an all too rough statement concerning the empathic index in the greater groups of mental diseases. I have turned the phrase about in connection with these different groups in suchwise that it must be evident that the empathic reaction is nothing new, strange, impractical or against experience when taken in itself. Quite the contrary.

The degree to which one can read or feel oneself into a fellow-being, particularly a patient, is a matter of common and everyday observation. Every newspaper story, every political reaction, every romantic situation, most of the human reactions, many of the philosophies are somehow entangled in this question not merely of our likeness to our fellow-beings but of our logical identity with them in one or more respects. However conclusive the statistical studies of the greater groups of mental disease may prove, the general study of man by man with respect to his empathic understanding of his fellow-being must prove profitable. The psychopathic may prove the key to the normal, as has proved true in the past. I commend this study to physicians and others because (save for the recording) it is far from a time-consuming study; because in a sense, its results vary infinitely with the amount of analysis performed, and because finally, the study of these reactions will enable one the better to carry out the principles recently dubbed autognosis. If in the empathic impression conveyed to a group of persons, a given case seems quite outside the range of empathy to one set of persons and quite within the range to another, there is a problem set not merely as to the mental disease in question but as to the attitudes of the observers themselves. Thus, in a peculiarly intimate way the study of empathy may allow psychiatry to begin where it always should, namely, at home.

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## FOREWORD TO "THE OCCURRENCE OF REVOLUTIONS"

BY BORIS SIDIS

THE following paper is timely and interesting from a scientific point of view in general and from a psychological standpoint in particular. The present European war is well termed a world war, the greatest war of nations on the records of history, a war shaking social organizations with their conflicting instincts and passions to the very foundations. This world maelstrom in which nations, large and small, are caught unawares is fraught with events no one can foresee, with consequences no contemporary can conceive. We have the good fortune of living in one of the greatest epochs in the history of mankind. Revolutionary changes are taking place on a gigantic scale under our very eyes without our realization of their trend and significance. We are in the midst of the mad whirl of this raging world hurricane so that our mental vision is obscured, our mind is paralyzed by the very magnitude of the furious struggle of frenzied social and psychic forces. No scientist, no statesman can forecast any of the consequences, or estimate the meaning of the profound and extensive transformations rapidly taking place in the nature of society and man. This much we seem to feel and know, that humanity is in labor with big events which are far beyond our ken, that society is in the throes of a new social order the character or even the outlines of which cannot be discerned in this infernal confusion of supreme struggle of social elements and human passions. Man and society are now being forged into new forms, hammered by Vulcan blows of war and revolt.

If, however, things appear dark as to the outcome of this great upheaval, some of its causes may be within our grasp. Any ray of light, coming from whatever quarter, should be welcome. In this respect the present contribution may add its mite in regard to some of the proximate contributing causes of one of the greatest catastrophes in the history of humanity. The merit of this contribution is that it advances in a general, though tentative way, one of the contributory causes of revolts and revolutions, referring them to fundamental economical conditions and psychic

states, famine and cold, fear instinct and self-preservation, which in turn are traced to variations of one central, cosmic source, to variations of solar energy.

The purely psychological aspect may be stated briefly as follows: When social forces become charged with revolutionary ferment the governments may under ordinary favorable conditions keep those forces in check by means of force exerted on the fear instinct, but the pangs of famine and the distress of cold with their results of disease and epidemic counteract the fear of force, arousing the fear instinct of death and the fundamental instinct of self-preservation, throwing the social organism into convulsions of riots, revolts, and revolutions. All this the author traces to variations of the central source of all terrestrial energy, —to variations of solar activities.

The writer, however, warns the reader not to take this cosmic source as the sole cause of revolutions, but only as one of the contributing factors, helping to turn the scale when social discontent has accumulated, and revolutionary forces are being ripened in the subconscious depths of social life. The cosmic factor is the trigger for the explosion and for the release of social, revolutionary forces.

## A REMARK ON THE OCCURRENCE OF REVOLUTIONS

BY WILLIAM JAMES SIDIS

THE general subject of revolutions is an interesting one for us at the present time. We have all been reading in the newspapers enough contradictory reports about the state of affairs in Russia to arouse a widespread interest in the recent revolution in Russia. We read every now and then of a new outbreak of revolt in the Austro-Hungarian Empire; an extensive revolt took place in the enemy countries only last winter; and the prospect, brought up by those events, of an actual revolution in Germany and Austria-Hungary, involves the possibility of a complete change in the face of the present war.

Such being the present interest in the subject, I venture to make a few remarks concerning the time when revolts and revolutions usually take place. I was led to my view on this subject by Taine's explanation of the French Revolution of 1789 in "*Les Origines de la France Contemporaine*." I take the liberty of quoting from this book: "L'hiver vint et fut le plus dur qu'on eut vu depuis 1709. Des le printemps de 1789, la famine etait partout, et, de mois en mois, elle croissait comme une eau qui monte— . . . Plus on approchait du 14 juillet, dit un temoin oculaire, plus la disette augmentait. . . . Pour avoir du pain de chien, le peuple doit faire queue pendant des heures . . . De toutes parts, en mars, avril et mai, l'emeute eclate." ("The winter came and was the severest that had been since 1709. From the spring of 1789 on, famine was everywhere, and, from month to month, it increased like a rising flood . . . The closer one came to July 14, the more the famine grew, said an eye-witness . . . To get a dog's bread, the people must stand in line for hours . . . From all sides, in March, April, and May, riot broke loose.") This suggests that the real cause of the French Revolution coming in the summer of 1789 was not the dissolution of the States-General, but rather a general famine accompanied by a prevailing "inflammation of the throat and intestinal pain," caused in its turn by the bad bread resulting from a poor crop due to



summer hail and a cold winter. In other words, the French Revolution took place in 1789 rather than four or five years earlier or later, because the winter of 1788 was extremely cold.

Taine's explanation of the French Revolution bears a remarkable resemblance to that of the Russian Revolution contained in the first official bulletin of the Petrograd Soviet, issued March 13, 1917. This bulletin begins: "The old regime has reduced the country to complete ruin, and the people to starvation. It was impossible to endure it further. The population of Petrograd went out into the streets to demonstrate their discontent. They were met with bullets. Instead of bread the imperial government gave the people a stone." The Russian Revolution was, according to this, based on a hunger strike.

This suggests the idea that revolutions and revolts in general (a revolt being a revolution that has not quite succeeded) are connected in some way or other with direct, obvious, physical discomfort, especially hunger, and possibly lack of clothing and fuel. Not that I wish to be interpreted as saying that this is the cause of revolutions; the causes are quite different. A match will cause an explosion in a powder magazine, but not in a tank of water; and similarly a famine will bring about a revolution in a society where the underlying conditions are such as to favor the spread of such ideas and where other proper circumstances are present.

Now, all such matters as lack of nutrition and lack of heat are dependent in great degree on the climate. In a cold country, a severe winter is directly a cause of physical discomfort; people freeze in such weather. Further, the early frosts preceding a cold winter lessen the crop, transportation becomes difficult, and generally a famine is more likely to result in such a year. In a warm country, a similar result occurs when the summer is excessively hot, the heat parching and drying the crops so that food is scarce.

It may be interesting to note that Professor Jevons has advanced a meteorological theory to explain the periodicity of industrial crises. Industrial crises usually appear about once in ten years. Jevons ascribes this to a periodicity in the climate, causing, in cases of cold years, poor crops, and therefore a failure of everything dependent on the crops, including the banking system, and through that, the whole industrial system. This supposed periodicity in the crops, which would directly concern the subject of this article, Jevons ascribes to a well-known periodicity in the number of spots on the sun.

To explain this, I may say that sun spots are rifts in the surface of the sun, exposing a lower layer. This lower layer gives less light and heat than the surface, and therefore, the more spots there are on the sun, the less heat the sun will give, and the cooler will be the climate. Now, astronomers have kept records of the number of spots on the sun since the early part of the last century, and it has been found that this number increases and decreases in a period of eleven years approximately. For example, there was a maximum in 1905, a minimum in 1911, and a maximum again in 1916. Jevons' theory was that the maxima of sun-spots cause cold weather, and, therefore, poor crops, resulting in industrial crises.<sup>1</sup>

The essential feature in this theory is that there is a periodicity in the crops corresponding to the sun-spots, this period being eleven years. This suggests the following question: If the weather and the crops follow the number of sun-spots, might we not expect the occurrence of revolutions also to be connected with the sun-spots? The best way to answer this is by comparing the dates of revolutions with the dates of maxima and minima of sun-spots.

Since the record of sun-spots was kept only for about a century, I have tried to select only revolutions in the nineteenth and twentieth centuries, since previous revolutions cannot easily be compared with the sun-spots. I have included in my list the great revolts that have taken place, and even the first Balkan war, which somewhat partook of the nature of a revolt. The list contains 33 revolts, of which seventeen occurred nearer the minimum of sun-spots than the maximum, and sixteen occurred nearer the maximum. This looks unsatisfactory at first sight, and as though there was no connection at all between revolts and sun-spots. But if we take separately the revolts that occurred near the maximum of sun-spots and those that occurred near the minimum, different results are obtained.<sup>2</sup> For

<sup>1</sup>For various reasons which I need not here specify, I do not agree with the theory of industrial crises advanced by Jevons.

<sup>2</sup>Table of sun-spot variations:

Maxima	Minima
1816	1811
1828	1822
1839	1834
1850	1845
1861	1856
1872	1867
1894	1889
1905	1900
1916	1911

example, the list of revolts occurring near the minima of sun-spots:

Minimum of 1811:	1809,	Tyrolese revolt.
	1810,	Revolt in Mexico.
Minimum of 1822:	1820,	Revolt in Spain.
		Revolt in Italy.
		Revolt in South America.
	1821,	Revolution in Mexico.
Minimum of 1834:	1833,	Carlist revolt in Spain.
Minimum of 1856:	1857,	Revolution in Mexico.
		Indian Mutiny.
Minimum of 1867:	1868,	Revolution in Japan.
Minimum of 1889:	1889,	Brazilian revolution.
Minimum of 1900:	1897,	Cuban revolution.
	1898,	Revolt in Spain.
Minimum of 1911:	1910,	Portuguese revolution.
	1911,	Mexican revolution (Madero's).
	1911,	Chinese revolution.
	1912,	Balkan Wars.

Compare these with the revolts taking place near the sun-spot maxima, as follows:

Maximum of 1828:	1830,	Revolution in France.
	1831,	Revolt in Poland.
		Belgian Revolution.
Maximum of 1850:	1848,	Insurrections in Austria.
		Revolt in Prussia.
		Chartist uprising in England.
		Revolution in France.
	1851,	Tai-Ping rebellion in China.
Maximum of 1872:	1871,	Paris Commune.
Maximum of 1905:	1905,	Rebellion in Russia.
Maximum of 1916:	1917,	Russian Revolution.
	1917,	Rebellion in Germany.
	1916,	Dublin "Sinn Fein" Insurrection
	1918,	Rebellion in Germany.
		Rebellion in Austria-Hungary.
		Uprising in Quebec.

To the last list I could add others; as, for instance, the French Restoration in 1815 (maximum of 1816); the Italian and



Russian uprisings of 1914 (maximum of 1916); and the American Civil War (maximum of 1861).

If we examine the two lists, we will find that most of the revolts in the first list occurred in warm countries, while most of the revolts in the second list occurred in cold countries. There are, of course, a few exceptions, but the exceptions are surprisingly few.

This would seem to indicate that there is actually an eleven-year period for revolutions corresponding to the sun-spots. In fact, if we take the above list of revolts in northern countries, and try to calculate from that what sort of period they could be fitted into easiest, the method of least squares gives us as that period: 11.07 years. The period of sun-spots has been estimated at 11.1 years. The average time of occurrence would be given, for example, as October 3, 1905; May 27, 1850, etc. I may add that, in 1905, the most and the largest sun-spots were visible in September and October. The average deviation from the regular periodicity is 1.78 years, or about 1 year and 10 months. If there were no tendency toward periodicity, the average deviation in the case of a period of 11 years would be slightly over 3 years.

Similarly with the other revolts on the list. The average period is found in the same way to be about 11.2 years, with the average time of occurrence at various dates down to April 8, 1911. The last sun-spot minimum was in 1911. Thus it appears that revolts and revolutions take place in warm countries near the minimum of sun-spots, and in cold countries near the maximum of sun-spots; in each case, when the weather is such as to tend to poor crops.

However, I do not wish to be understood as saying that the sun-spots cause revolutions. An appearance of sun-spots could not, by itself, produce revolution unless other circumstances are already such as to cause the revolution. All such revolutions would occur anyway, even without the sun-spot variations; but these sun-spot variations superadd natural extremes of climate, causing not only physical discomfort but danger to life and health, thus hastening a revolt that might otherwise have waited for a very long time.

A government not based on the will of the people must, in the nature of things, rule *by fear*, by keeping the people in constant subjection; and the people will be kept in subjection as long as they can be *made to fear*. The tendency of such oppression is to exasperate the people and excite them to desperate

measures, especially if the oppression affects their means of livelihood. But if circumstances suddenly become such that many lives, or the health of many people, are seriously threatened as by extreme cold, famine, &c., *this superadds the instinct of self-preservation, and the fear is entirely counteracted. The power of the government to keep the people in subjection is weakened, and the rebellious tendencies come to the foreground, resulting in open revolt. This will happen especially, if there is a poor crop; and this probably takes place every eleven years, in accordance with the sun-spot variations.*

In order to have a revolution at the proper time in the sun-spot cycle, the revolutionary tendency must be there already. This alone would produce rebellion, if left to itself for maybe a generation or more; but the sun-spot cycle always comes in and hastens it, so that a rebellion would usually occur at a sun-spot maximum in colder countries, and at a sun-spot minimum in warmer countries.

This rule would, therefore, apply only to the date of the beginning of a revolt; therefore all revolts included in my list were dated from the time of the outbreak, and not of the culmination.

To illustrate the sun-spot periods from recent history. The recent sun-spot variations have been: 1900, minimum; 1905, maximum; 1911, minimum; 1916, maximum. Allowing a variation of three years in some cases from the exact date of the maximum or minimum, as the case may be, we will start with three years before the minimum of 1900, that is, 1897. At this time we may expect revolts to take place in warm countries, and this sort of period lasts till 1903. After a hot summer, revolt broke out in Cuba in the fall of 1897. The proximity of Cuba to the United States brought about American intervention in the shape of the Spanish-American War of 1898. The Philippine Islands, which were annexed by United States, revolted in 1902. Even in 1903, revolt broke out in Panama. But now we are getting to the period of revolt for the northern countries, approaching 1905. In 1903 the two branches of the Social Democratic party of Russia, the Bolsheviki and the Mensheviki, were organised, revolts were threatening in 1904, and the Czar's government, threatened by this, proceeded to throw its people into a fight against Japan. This attempt was unsuccessful; and in 1905, at the time of the sun-spot maximum, a revolutionary organisation was established in Russia, only to be crushed. The

last traces of this revolt were, apparently, stamped out in Western Russia by the aid of the German Government in 1906.

Now the scene shifts once more to the south. We now see uprisings in Turkey in 1908, in Portugal in 1910, in China (starting in the south) in 1911; Mexico also started a revolution in 1911, the year of the sun-spot minimum and of an unusually hot summer. In 1912 the attempt at liberation of the Balkans resulted in the Balkan wars.

A year later, the end of 1913, was the time midway between the minimum and maximum of sun-spots, and it was to be expected that the scene would suddenly shift back to the northern countries. In the spring of 1914 a general strike of a political nature (demanding abolition of the three-class system of voting) took place in Belgium, forcing the Belgian government to appoint a commission to revise the electoral laws. The Socialists in Prussia made similar demands, and, when met with the usual Prussian disdain, replied "*Wir werden belgisch reden*" (we will talk Belgian). The German Socialists began to show openly their contempt for the Kaiser,<sup>3</sup> and the prospect of a German revolution loomed near. The Irish were arming. There was also strong tendency toward revolution in many other European nations.

In the mean time, the supposedly suppressed Russian revolt suddenly reappeared. The President of France was visiting Russia when the revolt broke out, and everything pointed to a general European uprising unless something unusually desperate was done. The only measure in sight was to start a general European war, and the ruler most threatened, the German Kaiser (for the revolt in Russia was getting under control), took the step.

Even that was a doubtful step. Socialists of all countries were opposed to war, and they were very strong in Germany and in the neighboring countries. Would they fight? It was known that they intended to convene on August 23, to decide definitely what to do in case of war; and it was the middle of July before the actual magnitude of the danger of revolution became obvious. War had to be started, if at all, within a month. The result was, that war broke out with hardly any preliminary negotiations, many 24-hour and 48-hour ultimatums were sent, and the war spread over almost all of Europe within the space of one week.

The sun-spot maximum, however, was not due till 1916,

<sup>3</sup>See Prince, "*The Psychology of the Kaiser*."



and 1916 was still to come. In 1916, there was a revolt in Ireland—a small beginning, but one which showed that the revolutionary period had not yet ended. In 1917, at the end of a long, cold winter, revolutionary activity in Russia revived and was finally successful; after that, Germany and Austria were shaken with a great number of revolts. There being about a year more before the sun-spots are due to settle down to their average activity, the revolutionary period in northern countries is not yet over, and there is still a possibility, if not a probability, of an Austro-German revolution within the coming year or so.

This illustrates the relation of the sun-spot period to current events. A discontented people can be kept cowed by fear, by the use of force, as a general rule, in normal times; but when the instinct of self-preservation is aroused by hunger, cold, &c., the people are much more ready for revolt, and a previously existing discontent will break out openly. This is brought about in general by extremes of weather and failure of crops which take place in cold countries at the sun-spot maximum, and in warm countries at the sun-spot minimum.

## THE PSYCHIATRIC SOCIAL WORKER\*

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**I**N no department of medicine is social work of such direct and logical importance as in psychiatry. Diagnosis, the first step of the psychiatrist, is dependent on knowledge of the conduct of the individual in the community, and very frequently such knowledge can only be obtained by a trained, unbiased person, *i. e.*, the psychiatric social worker. Treatment of such individuals is a dual process and consists of an adjustment of the patient to society while at the same time, society must make (or be forced to make) an effort to adjust itself to the patient. The social worker acts, then, as the sensory and motor apparatus of the physician, while at the same time she builds up an independent social science which, in the long run, helps govern the knowledge and conduct of the physician.

It has been stated that treatment in many of the psychiatric diseases is a process of adjustment, a series of manoeuvres which result in the location of the patient in his proper place in society. Before going on to consider the mechanism of adjustment, it is necessary to outline briefly the field of psychiatry. For the most striking thing in the development of the field of mental disease has been the extension of the subject *socially*. Independent of its closer union with neurology, has been its affiliation with criminology, social hygiene, the employment phase of economics, the distribution of charity and social relief, and lastly, its recognition as a great branch of medicine by the military authorities, so that the neuro-psychiatrist has a great role both in the selection of army and navy personelle, and in the care of the disabled. It is these social affiliations that have made the psychiatric social worker a necessity. Dependence upon social workers, untrained in psychiatry, however well trained otherwise, necessitates personal training by the psychiatrist, and this is both wasteful of time and necessarily incomplete.

\*Being Contributions of the Massachusetts Commission on Mental Diseases, Series of 1918.

We may divide the field of psychiatry, in so far as social work goes with the following branches:

1. The psychoses proper—the frank insanities. Here the role of the social worker is first in securing good data which serve in the making of the diagnosis, and in the addition of authentic data concerning inheritance, and general life development of the insane. I emphatically state that no case of mental disease can be *thoroughly* “worked up” and that many cases are hopelessly handled, without data so obtained. A thorough follow-up system throws light on cases of mental disease such as could not be brought to bear otherwise, and the statement may safely be ventured that many of the opinions now current in psychiatry will need radical alteration when such follow-up systems have been used for a few years.

The young social worker, and even the older, as well as many physicians become discouraged with their results in the handling of the insane. “What,” they ask, “can you do for the patient? Nothing but commitment to an insane hospital, and what is that but a form of imprisonment?” They have missed the fundamental point in commitment—the safeguarding of society. For it is not the actual physical damage an insane person may do that is of greatest importance—it is the generalized *social damage*. This damage occurs because he disorganizes homes, lowers the mood and the efficiency of the normal people in daily contact with him, is a focus of social difficulty of all kinds which becomes diminished to its lowest possible figure on commitment. Here the social adjustment, in which the worker plays a preliminary part, is in sequestering the individual but the social adjustment thus carried out is of high importance.

Feeble-mindedness has great social significance as has been pointed in almost innumerable writings of late. Though it is my belief that there has been marked exaggeration as to its role in criminality, prostitution, and the like yet it remains true that the social difficulties of the feeble-minded bring them into contact with the courts, the relief agencies, and make them the despair of the employer. Since many of them are non-committable, and others need not be committed, the difficulty of finding a place in the social structure for these is a problem for the social worker. To keep the lawlessly inclined out of trouble by constant supervision, to find a place of employment for the low grade employee, are not easy tasks. Yet that the first task has been to some extent accomplished is based on the authority



of Dr. William Healey, who states that juvenile crime in Boston is neither so frequent nor so serious in nature as in Chicago, and this he attributes to the excellent social service organizations of Boston. The second task is part of the great general program of efficiency, and it may be summed up "Low grade work for low grade people." To have high grade people doing such work is economic waste.

The extension of Psychiatry to criminology is merely the recognition of the fact that the point of departure in crime is the *criminal himself*—his mentality, his personality—matters which call for psychiatric investigation. With the entrance of medicine and psychology into this field the scope of the activities of the psychiatric social worker has broadened, potentially at least, to an almost unlimited degree. For the collection of the life data relating to any one who has become a breaker of the laws is one of the two fundamental inquiries necessary before establishing responsibility, and before initiating treatment. For the conception of treatment must supplant that of punishment, and treatment is social adjustment, which at present is partly undertaken by probation departments, and in larger part not undertaken at all. Here is a social work of difficulty but of great promise for the trained person.

Now it is not only the insane, the feeble-minded, the criminal who are the "material" of the psychiatrist, and the psychiatric social worker. The difficulties of adaptation to the "Great Society," the balking of desires and instincts, the crushing power of failure and disillusionment, the injury done by poverty and all that goes with it, *psychically and physically* make up the background of neurasthenia, psychasthenia, hysteria—diseases of emotional and intellectual mal-adaptation. Here especially the social situations are of great importance and often the remedy is entirely social. Removal to a better neighborhood, a start on another social road, the smoothing out of domestic difficulty, adjustment to the mate, better care for the sick child, relief in part from monotonous drudgery—I believe that here is where social service helps *essentially normal people* out of abnormal social situations into relative health.

One cannot omit the War from any discussion, and here the psychiatric social worker may confidently look forward to a field of work. For the war will break down many a man, not only in the way indicated by the term "Shell Shock" but by producing a protracted mental attitude which may be classed with

neurasthenia. Men will come out weary, restless, full of physical and mental pains and aches, ridden by obsessions, and harassed by inaptitude. And these men will have to be helped, and *solicitously* helped, with the attitude that they are claimants to the best efforts of society. Their claim will be supported by those who love them, by those who will find their chief interest in the problem: "How can *He* get well?" Anything short of the best will produce mutterings and a sullen discontent that may well shake the foundations of the state. This aspect of the work of the psychiatric social worker cannot be over emphasized. Aside from the ordinary value of such social-adjustment work, it gains additional importance because, in direct ratio to its success it will make for social stability.

Consequently there is a double need for such a school as Smith College is fostering this summer—the peace-need and War-need. Civilian and soldier, in so far as they become neuro-psychiatric problems are problems of society, and must be helped by trained workers. Good intentions alone will be worse than useless, and the cooperation of psychologist, sociologists, social workers, and psychiatrists to educate young women for the work, is a step toward social efficiency.

What type of woman is needed? It is perhaps easier to state the objectionable qualities. For this kind of work brings one into contact with such disturbing qualities of human personality as to make frankness necessary in the consideration of the character of the worker.

First, the Prude must keep away. For in psychiatry one meets sex not only naked but often perverted as well. One must be able to face the objectionable without qualm and prejudice in order to adjust to it. The essence of Prudery is a squeamishness to *Fact*, and this is the crime of crimes in a social record.

Second, one must not be "over strong." By this I mean that person who believes the race is to the swift, and the battle to the strong, and that they who fall are unfit and ought to be eliminated without further ado. It takes only a glimmering of sanity to know that this is not true, that it is pure, unadulterated egoism, the gospel of the young and successful. The social worker needs above all things the idea that insanity, crime, failure, all have their seed in her, that normal and abnormal are distinctions applied to extremes of quantitative difference. Such an idea links together social worker and patient with the

bond of fellowship, and insures sympathy and tact on the part of the former, and a willingness-to-be-helped attitude on the part of the latter.

Hyperaestheticism, that is, attention to form, rather than matter, the cult of beauty, is out of place in a psychiatric social worker, but there is little danger that a person tainted with this quality will seek the work. The over-emotional rarely stay in long, for gushes of feeling, ecstasies of sympathy bring too violent reaction in the face of unbudging reality. For society has so few real adjustments, and so much creaking and groaning of paraphernalia is needed to utilize these, that sturdy, clear-sighted energy is necessary and the over-emotional rarely is capable of sustained effort.

It is understood, then, that the qualities of good, solid, young womanhood are present in the candidate for training for psychiatric social work. Such a person will be fitted for activities that are as well paid as the better grade of teaching, and for her services the demand will raise the reward to steadily higher levels. Unquestionably, the war will raise all social work in dignity and remuneration, for the war is bringing a unifying feeling of social responsibility to the heart of every American. *And social responsibility is the energizing feeling behind social activities.* Like other problems of society the day when we considered the field of psychiatry the province of medicine alone is passing, has almost passed. As ally and servant, social science has stepped in to help the older profession.



## EXPLANATORY NOTE

On account of illness, Mr. L. H. Horton has been unable to correct the proofs of the conclusion of his article "The Illusion of Levitation" up to the time of going to press,

It is considered advisable to publish an abridged number at this time rather than wait longer for Mr. Horton's contribution, which will appear in a subsequent issue of the Journal.

THE EDITOR.

## REVIEWS

**DISEASES OF THE NERVOUS SYSTEM.** A Text-book of Neurology and Psychiatry. By Smith Ely Jelliffe, M. D., Ph. D., Adjunct Professor of Diseases of the Mind and Nervous System, New York Post-Graduate Medical School and Hospital; and William A. White, M. D., Superintendent of St. Elizabeth's Hospital, Washington, D. C.; Professor of Mental and Nervous Diseases, Georgetown University; Professor of Nervous and Mental Diseases, George Washington University; and Lecturer on Psychiatry, U. S. Army and U. S. Navy Medical Schools. Second Edition, Revised, Rewritten and Enlarged. Illustrated with 424 engravings and 11 plates. Published by Lea & Febiger, Philadelphia and New York, 1917. Pp. XIX and 938. Price, \$7.00.

Improvements have been made in this, the second edition of this excellent text-book, in the chapters on the vegetative nervous system and the endocrinopathies, and the sections devoted to the psychoses proper, while war injuries have been included in the discussion. A general introduction has also been added, elaborating the authors' views on classification of disorders of the nervous system. The book has further been generally revised and rewritten.

Since the first edition of this work was not reviewed in the pages of the *Journal of Abnormal Psychology*, a general survey of the contents of the volume is not out of place at this date.

Following a chapter on methods of examination of the nervous system, the authors classify the material of neurology and psychiatry under three main headings or systems, named the physico-chemical systems or the neurology of metabolism, the sensorimotor systems or sensorimotor neurology, and the psychical or symbolic systems including the neuroses, psychoneuroses and psychoses.

The first part, the physico-chemical systems, is divided into two sections, dealing with the vegetative or visceral system and the endocrinopathies respectively. The chapter on the vegetative or visceral nervous system is a splendid presentation of the known facts and dominant views in that field. In no work of the sort before us, namely, a text-book of neurology and psychiatry, can there be found, to the reviewer's knowledge, any exposition that can be compared with the presentation given in White and Jelliffe in thoroughness, directness, and up-to-dateness. This is, in truth, one of the most distinctive features of the book.

In the second part, sensorimotor neurology, we have a compact and up-to-the-minute summary of the various affections of this part of the body machinery, from the lowest to the highest rungs or levels of the central nervous system. The pages given up to "Syphilis of the Nervous System" offer one a good grasp of the havoc which may be wrought by the *spirocheta pallida*. This is one of the best portions of this text-book.

Finally, in the part labelled "Psychic or Symbolic Systems," comes the discussion of the psychoneuroses, neuroses and psychoses, including mental defectiveness. Since both authors are Freudians, it is to be expected that they should weave into much of their discussion in this section the Freudian views. This, to be sure, we find true. Especially so can this be said to apply to the chapter on "The Psychoneuroses and Actual Neuroses." In fact, it must be said that they have practically neglected the views of others on this problem and have presented things from the more or less strictly Freudian viewpoint. Such one-sidedness in a work of this sort, intended, it must be remembered, for students, novices in a new field of thought and labor, is, I cannot refrain from saying, not exactly scientifically fair to the inquiring and innocent student.

The illustrations are abundant and excellent, many of them being from Dejerine.

As in everything they write, singly or jointly, White and Jelliffe have run true to form and given the profession a volume which is not cold, dry-as-dust, and uninviting, but one which tells in a snappy, lively and concise manner the long and many-sided story of the wounded nervous system in all its complexity and at all its levels.

Needless to say, the book is modern—very modern, not old fashioned, quite up-to-the-minute. More, however, could have been added on war injuries, especially on so-called shell-shock or war neurosis. Had the latter subject been presented, it would have been in sharp contradiction to the views expressed in the chapter on the psychoneuroses, for, most will agree, the war neuroses, a form of traumatic neurosis, have proven to us conclusively, if we doubted it before, that the Freudians were in error, at least in assigning an exclusively sexual etiology as the origin of the psychoneuroses and allied conditions.

It may be said, too, that the book is probably more suited for an advanced student of neurology than for a beginner.

One other criticism may be added. In their efforts to bring home the role of the psychogenic factor, the authors at times lay too much stress on the power of psychogenic factors in inducing all sorts of peripheral reactions of the lowest type. For instance, on page 166,



they refer to certain cases of eczema and psoriasis as being symbols of a psychological compromise, the results of chronic emotional conflicts in the unconscious; and again, on page 244, they refer to possible psychogenic arthropathies and arthritides.

All in all, however, White and Jelliffe have contributed a valuable, worth-while work, in which they have endeavored to offer something new, something appealing to progressive tendencies in neurology and psychiatry.

The fact that a second edition has already been called for shows that the reaction on the part of their audience has been sympathetic and generous.

MEYER SOLOMON.

PERSONALITY AND CONDUCT. By Maurice Parmelee, Ph.D., Author of "The Science of Human Behavior," "Poverty and Social Progress," "Criminology," "The Principles of Anthropology and Sociology in Their Relations to Criminal Procedure," etc. New York: Moffat, Yard & Company, 1918. Price, \$2.00 net. Pp. 283.

One who has read Parmelee's splendid work entitled "The Science of Human Behavior" should expect nothing but good work from the mind and pen of this particular author. The author seems to have laid his groundwork in the book just mentioned, and then to have followed this up by a discussion of the poverty problem, then the problem of the so-called criminal, and now in the volume under review by a discussion of certain other questions.

Parmelee pleads for the development and cultivation of the spontaneous expression of human nature in desirable directions.

He differentiates between what he calls invasive (including acts which are obviously and unmistakably harmful to others) and non-invasive (including acts which do not injure others or are not unquestionably harmful to others) conduct. Upon this should the criterion for social control be based.

The book is devoted for the most part to the discussion of the nature and regulation of three aspects of human life—the craving for noxious substances, especially alcohol, "the spirit of adventure and tendency to take chances in the form of gambling and useless and wasteful speculation," and the sex life.

The causes of alcoholism and drug habits, their relation to poverty and crime, and the regulation of intemperance are sanely discussed.

The types of gambling, the gambling impulse and the regulation of its evils come in for broadminded consideration.

About 180 pages are given up to an all-round analysis and dis-

cussion of the sex problem in human beings. The play function of sex is emphasized. Parmelee discusses in regular order the play function of sex, methods of sex regulation, the evils of sex repression, the double standard of sex freedom, the causes of prostitution, the utility and disutility of prostitution, the failure to suppress prostitution, the regulation of prostitution, sex education and training, and the organization of sex relations. Throughout this portion Parmelee shows that he is well versed in all aspects of this problem, for he approaches the subject with the solid foundation of a good training in the biological viewpoint, without neglect of the psychological, economic and other factors involved. His exposition is free and frank, his suggestions are definite and well-founded, and he endeavors to deal sanely and without prejudice with various problems which have been thorns in the sides of so many.

In his final chapter on "The Development of Personality" the author again shows the evils of the suppression of personality through excessive uniformity, the importance of free self-expression along worthwhile lines, and the great need for more knowledge of human nature.

Parmelee has a right to express opinions. He has read widely, and thought much. And he is not afraid to say what he thinks and what he means.

His knowledge of biology, psychology, anthropology, and many allied fields qualifies him as a sane and reliable author, who handles his problems in a thorough manner, and who is especially deserving of an attentive and large audience.

MEYER SOLOMON.

**CRIMINOLOGY.** By Maurice Parmelee, Ph.D., Author of "The Science of Human Behavior," "Poverty and Social Progress," "The Principles of Anthropology and Sociology in Their Relations to Criminal Procedure," etc. New York: The Macmillan Company, 1918. Price, \$2.00. Pp. 522.

Again Parmelee has hit the bull's eye. This volume does indeed present us with a comprehensive, yet concise survey of the whole field of criminology from the point of view of social control.

The work is divided into six parts—The Nature and Evolution of Crime, Criminogenic Factors in the Environment, Criminal Traits and Types, Criminal Jurisprudence, Penology, and Crime and Social Progress.

In the first part, criminology as a science is demonstrated to be a special, although hybrid science. The origin and early evolution of crime are delineated, and crime and social control sensibly discussed.

In part II, Parmelee analyzes such environmental criminogenetic factors as the physical environment (climate, season, and weather), demographic factors (urban and rural crime and vice), the economic and political bases of crime, and the influence of civilization upon crime.

In part III, entitled *Criminal Traits and Types*, the organic and mental bases of crime, criminal aments, psychopathic criminals, juvenile and female criminality, and the types of criminals are discussed in the light of our present knowledge of these questions.

In part IV, on *Criminal Jurisprudence*, the chapter headings will tell the reader the scope of the presentation: *The Evolution of Criminal Law and the Classification of Crimes*, *The Functions of Criminal Procedure*, *the Scientific Principles of Evidence*, *Public Defense in Criminal Trials*, *the Judicial Function*, and *The Police Function*.

Under *Penology*, in part V, Parmelee takes up in separate chapters such aspects of his chosen problem as the origin and evolution of punishment, the moral basis of penal responsibility, the sentence and the individualization of punishment, the death penalty, the prison system, and "A Scheme of Penal Treatment."

In the fifth or final part on *Crime and Social Progress*, there are offered chapters on political and evolutive crimes and criminals, evolutive crimes and social readjustment, and the prevention of crime. There is a valuable "partial bibliography."

By virtue of his unusually wide reading and broad grasp of the many ramifications of criminology and allied sciences, Parmelee has been enabled to contribute, in a short, single volume, a thorough survey of this flourishing new field of human endeavor.

Parmelee is fully abreast of the times, and no views that are worth while escape him. He is in thorough sympathy with the work which is going on all about him by different sincere and level-headed workers.

One who wishes to know what is going on, what the problems are, what the progress is, in the field of criminology, can do no better than get this work by Parmelee.

Needless to say, all workers in the field of criminology will appreciate this new work by a good thinker and clear writer.

MEYER SOLOMON.

*THE PSYCHOLOGY OF BEHAVIOUR. A Practical Study of Human Personality and Conduct with Special Reference to Methods of Development.* By Elizabeth Severn, Author of "Psycho-therapy." New York: Dodd, Mead & Company, 1917. Pp. 349. \$1.50 net.



This is supposed to be "a systemtized practical psychology for actual use in daily life."

The seven chapters have the following headings: "Some New Aspects of Mind—The Psychology of the Unconscious;" "Intellect—The Psychology of Perception;" "Imagination and Memory—The Psychology of Extension and Retention;" "Will—The Psychology of Action;" "Emotion—The Psychology of Feeling;" "Sex—The Psychology of the Creative Life;" and "Self—The Psychology of the Ego." These chapter headings will at once give one a fair idea of the contents of this book.

On page four the author acknowledges that her "viewpoint is frankly metaphysical rather than biological, and idealistic and suggestive rather than materialistic and 'positive.'" Its appeal was meant to be popular, and many of the suggestions which are crowded within the scope of each chapter cannot help being, for the most part, of considerable usefulness if taken to heart and practically applied. It will also give the average reader some practical psychological suggestions which should set him thinking on his own account.

Most of the topics dealt with are rather summarily and superficially handled, with the object of directness, simplicity and popular appeal.

The writer contends that "the burden of my thesis is for greater freedom and spontaneity in Behavior, rather than for restraint." Self-direction with self-understanding may be said to be her ideal. But it is doubtful whether one can gain this knowledge from the book.

Throughout she shows that she has read psychoanalytical literature, for she has absorbed some of the views of psychoanalysis and incorporated them in this work. So much so is this the case that in her chapter on the psychology of sex she reduces all life-manifestations and all forms of energy to sex. She hopes for the day when, among other desirable things devoutly to be wished for, "homosexuality, however unfortunate, is known to be neither a crime nor a disease," and, she adds: "Let us do our part in preparation for it by realizing that the Sex-instinct is the centre around which everything revolves, that nothing exists but through it."

One becomes convinced of the writer's sincerity as one reads the book. She has apparently read rather widely in psychology.

All in all she has given the average layman a useful volume, which can be read with considerable profit by most persons, with many truths scattered through its pages, but with some errors here and there, especially in the chapter on "Sex—The Psychology of the Creative Life."

MEYER SOLOMON.

THE CREED OF DEUTSCHTUM AND OTHER WAR ESSAYS, Including THE PSYCHOLOGY OF THE KAISER, With a Foreword by Marquis Okuma (Late Prime Minister of Japan). By Morton Prince. Boston: Richard G. Badger, 1918. Price, \$2.00, Net. Pp. 311.\*

An understanding of the driving forces responsible for the onset of the Great War is of the greatest interest to the psychopathologist. For this reason, besides other weighty reasons, this book by Morton Prince will find an appreciative audience. Although the reviewer has read many other expositions of a somewhat similar nature, and long since was convinced of the truth of the views expressed by Prince in his first chapter on "The Creed of Deutschtum," there is no other article which he has read which so briefly and so ably presents the subject from the standpoint of a psychologist, yet simply so that he who runs may read and understand, and, let us hope, believe. In this essay Prince shows that the mystic paranoid ideal of *Das Deutschtum* (inadequately translatable as "Germanism" or "German-dom") had become for the rank and file of the mass of the German people nothing less than a religion. The history of the origin and evolution of his ideal takes us back to the German philosophers Hegel, Kant and Fichte, until at the beginning of the war it had impregnated German thought so thoroughly that not only the universities, the teachers, the so-called intellectuals, but all classes, such as captains of industry, statesmen, military writers and even the masses were infected with the contagious diseased state of mind which resulted therefrom. Prince develops the principles of *Das Deutschtum*. He shows how this has become the national consciousness of Germany. Prussian militarism is but one of the patent expressions of the underlying state of mind which dominated the classes of Germany.

In the second chapter on "Prussian Militarism and a Lasting Peace," Prince shows how the world war now raging is a conflict between two principles of government, with the need of the destruction of Prussian militarism and of the deluded, obsessional state of mind brought on by the dangerous ideal of *Das Deutschtum*.

The kaiser himself is but a mouthpiece whence emanate many of the thoughts and attitudes which have been built up on his mental soil as a result of the philosophy with which he, in common with others, has been impregnated. He therefore represents Prussian militarism and the state of mind of the German national consciousness which Prince has here called *Das Deutschtum*.

And it is at this point that Prince interjects his very excellent study of the kaiser which a short time ago appeared as a separate little volume with the same title as Chapter III—"The Psychology of the

Kaiser." A Foreword by Marquis Okuma and an Introduction by Professor Shiowasa) both of which appeared with the Japanese translation of this essay) are included. This part of the work was reviewed by me for the *Journal of Abnormal Psychology* when it appeared in book form, and he who has not read the original book will do well to read it here. It is the best exposition of the mental mechanisms of the kaiser that the reviewer has read anywhere.

Four essays entitled "The American Versus The German Viewpoint," "The American Conscience, 1914-1915," "The Disintegration of an Ideal," (in which the author, before the United States entered the war, pleaded that it was the duty of the United States to protest against the atrocities of the German government), and "The War—A Test of the Germany Theory of Militarism" respectively, are followed by that comprehensive and sound chapter on "A World Consciousness and Future Peace," which appeared recently in the *Journal of Abnormal Psychology*, and in which Prince demonstrates that the future peace of the world depends in the last analysis upon a world consciousness in international relations. The problem is thus reduced to that of education, of proper mental attitudes, of psychology.

The other fellow who disagrees with the author may not feel so pleased with the work as the reviewer is, but it would do him good to read it.

It is gratifying to see psychologists of the standing of Morton Prince enter the field of such decidedly practical affairs as international relationships.

MEYER SOLOMON.

\*This review was received for publication before the armistice was signed.



## BOOKS RECEIVED

Locomotor Ataxia. By William J. M. A. Maloney. D. Appleton & Co. Pp. XXI and 299. \$3.50.

Experiments in Psychological Research at Leland Stanford Jr. University. By John Edgar Coover. Stanford University Press. Pp. XVI and 641. \$3.50.

Dynamic Psychology. By Robert Sessions Woodworth, Ph. D. Pp. 210. Columbia University Press. \$1.50 net.

The Way Out of War. By Robert T. Morris. F. A. C. S. Doubleday, Page & Co. Pp. VI and 166. \$1.00 net.

Rest Suggestion in Nervous and Mental Diseases. By Francis X. Dercum. P. Blakiston's Sons & Co. Pp. IX and 395. \$3.50 net.

Psychical Phenomena and The War. By Hereward Carrington. Dodd, Mead & Co. Pp. IX and 363. \$2.00 net.

The Technique of Psychoanalysis. By Smith Ely Jelliffe. Nervous and Mental Diseases Publishing Co. Monograph Series No. 26. Pp. XII and 163. \$2.00.

The Feeble Minded in a Rural County of Ohio. By Mina A. Sessions. Bulletin No. 6 of the Bureau of Juvenile Research Ohio State Reformatory. Pp. 70.

The God of Vengeance. By Sholom Ash. The Stratford Co. Pp. XIV, XX and 99. \$1.00 net.

Supplement for Psychological Tests. A Bibliography. Bureau of Educational Experiments. Pp. 33. 10c.

The Mental Survey. By Rudolf Pintner. D. Appleton & Co. Pp. VI and 116. \$2.00 net.

War Neuroses. By John T. MacCurdy, Cambridge University Press, London. Pp. IX plus 132. \$2.50.

The Modern Treatment of Mental and Nervous Disorders. By Bernard Hart, University Press. Pp. 28. 50c.

Nerve Control and How to Gain It. By H. Addington Bruce Funk & Wagnalls Co. Pp. IX plus 307. \$1.00.

The Unsound Mind and the Law. By George W. Jacoby. Funk & Wagnalls Co. Pp. XIV plus 424. \$3.00 net.

Neuropsychiatry and The War. A Bibliography with Abstracts. Prepared by Mabel Webster Brown. The National Commission for Mental Hygiene, Inc. Pp. 117.

Mental Diseases. By Walter Vose Gulick. C. V. Moseby Co. Pp. 142. \$2.00.

L'Expertise Mentale Militaire. By A. Porot & A. Hesnard. Mason et Cie. Paris. Pp. 137 fcs. 4. (80c.)

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## ORIGINAL ARTICLES

### A CASE OF ALTERED EMOTIONS BEARING ON THE LANGE-JAMES THEORY

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THE famous Lange-James theory of the emotions states indirect opposition to both the Introspectionists' and Intellectualists' Schools that the essential features of any emotion are its bodily manifestations—"so that were the bodily commotions suppressed we should not so much feel fear as call the situation fearful; we should not be surprised but coldly recognize that the object was indeed extraordinary. One of the enthusiasts has gone even so far as to state that when we feel sorry it is because we weep; when we feel afraid it is because we run away, and not conversely . . . . .".

The case which I am citing seems to show that feeling may itself be absent from consciousness, even though the vaso-visceral manifestations are fully developed, and what is more, fully appropriate. That is to say, in response to a sad situation this patient cries, in response to other situations she laughs, without—so she says—being either sad or glad. So with the other emotions. That is to say in direct contradiction to what is quoted from James in the paragraph above—though she weeps she does not feel sorry; though she runs away she does not feel fear.

*Impulsive laughing and crying under inappropriate situations* without feeling have been described as occurring in diseases of the basal-nuclei. I have seen several such cases, and have corroborated the hazard as to the lesion by an autopsy in one

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case. In the case here cited there was no organic disease, and in addition to mere laughing and crying, sadness and gladness or other emotions the fundamental organic sensations are absent,—that is to say neither sorrow nor joy, fear nor anger, hunger nor thirst, sex desire nor fatigue are present. Generally phrased psychic pleasure and pain are absent though their manifestations are fully present. There is, however, the recognition that the absence of feeling is somehow wrong, is a void, and something vital lacking. It is because of the conviction that she is not much better than dead, and to obtain explanation and treatment that the patient presents herself at the Out-patient Dept. of the Psychopathic Hospital.

The case history follows:

Miss ————, case No. 7868, age 32, single, of Anglo-Saxon ancestry which has been American for many generations, a native of Georgia, has nothing of special importance in her family history. Her mother was nervous but not to an extraordinary degree, and there has been no mental disease in the family (all this and the following is according to the patient, for there is no outside history obtainable). Her own childhood was uneventful. She went through High School successfully, entered the business world and held fairly good positions.

In temperament she has always been “nervous,” that is to say emotions of pleasure or pain had a low threshold, were easily aroused and quite pronouncedly demonstrated. When “saddened” or “hurt” she cried easily and copiously, when pleased or flattered she laughed, perhaps above measure. She was rather shy but loved people. She liked music and the “finer things.” The sense of disgust was exceedingly easily aroused, which is, of course, related to her luxurious and keenly asthetic tastes. Like many people who react vigorously to the disagreeable, she was easily fatigued, and looked ahead enough to be easily worried and depressed. One might call her *cyclothymic*, except that generally speaking her moods related to definite happenings, and had not so much the element of the unknown, the organic, as the *cyclothymic* do. Her energy was low, affectivity high, and she reacted to the outside world with emotion rather than with objectively directed conduct. In a word, she corresponded to the “sensitive” type of Ribot.

A few words about her sexual life. This seems to have been conspicuously undeveloped. The menstrual flow has been always rather scant, but the periods though established at

fifteen are regular and without excessive pain. She has never known what she has recognized as definite sex desire, though when with the man she loved she felt a tingling, electric-like feeling throughout her body. Since she never embraced nor kissed him, (nor any other man), she has had no experience of the more vigorous sexual feeling that goes with bodily contact. Despite her thirty-two years of life she seems conspicuously ignorant of sex matters. Virginal, childlike in appearance and views, she also seems to have been virginal and childlike in sex feeling.

Seven years ago the patient came to Boston to live with a friend and work in the city. This friend, a sort of philanthropist and encourager of struggling talent, had as a frequent visitor a young musician two years the junior of the patient, and with whom she speedily fell in love. This love was apparently not openly reciprocated. It is doubtful if he ever was anything but annoyed by her affection. At any rate, he never responded to her advances, which were probably shy and without definite form. But the lady of the house, divining her secret and not wishing the affair to continue since she felt it could only turn out unhappily for the girl, prevailed upon her to go home to Georgia.

This she did, and had what she calls "nervous prostration," that is she was sadly lacking in energy, easily and painfully fatigued, given to paroxysms of tears and sometimes of "hysterical" laughter, easily startled by noises, somewhat seclusive and depressed, and decidedly introspective, with much day-dreaming, and a good deal of pain. The pain was especially located in the head and consisted mostly of a tension and feeling of internal pressure. (This occurs in my experience in what I have begun to term "circular" thinking, that is where the same set of emotions, desires and ideas occur and recur against the will of the patient, so that he lives in what one patient termed "a monotonous merry-go-round" of thought and feeling). This pain became very intense and on the day when the crisis, later described, occurred it seemed to her as if the very top of the head was about to be lifted off.

The crisis took a severe delirious form. She became confused, "feverish," only partly aware of what was going on about her, and was confined to her bed. There were no hallucinations nor delusions, no disorderly conduct—but the pain in her head became more than she could bear. This lasted a day and was considered to be Grippe. Then she "recovered," that is the

pain left, she gained rapidly in strength and endurance, and put on weight. In a few days she noticed the symptom of which she still complains, and which has not changed in any extent from that time five years ago, to this. In brief, there is an entire dearth of feeling, despite the fact that she expresses emotion perfectly naturally.

Now, as will be later detailed, though there is lacking in consciousness of feeling there is not a corresponding lack of desires. For example,—she wants to love the man, is attracted to him, but cannot find anything like the feeling she used to have. She went to see him off to war and though all her thought concerned him, and she would have wished, (“if I can use the word wish”), to marry him, yet there was a deadness of feeling. Likewise she desires to get well, thinks only of this in addition to the man, yet has neither hope nor anxiety regarding recovery. Likewise she wants America to win the war, but there is no patriotic feeling. Desires related to purpose are not absent, and intellectual activity is not definitely impaired so far as can be seen.

Physical examination shows a slender woman, looking less than her age, with under-developed breasts and hips, slender and long legs and arms. She has a rather large goitre, which, however, is hard, not pulsating, is not accompanied by exophthalmos, rapid pulse, tremor, nor by any of the secondary signs of hyperthyroidism. The voice is almost falsetto, but is not disagreeable is very childlike and without the resonance of maturity. The visceral and neurological examination is negative.

In telling her story her expression is animated, though generally somewhat depressed, and it is “nervous,” that is, there are the grimaces, the fluent gestures, the over-ready somewhat excessive laugh not related to pleasure but to tension of the nerves. She gives the impression of being over-emotional, and in fact cried twice during the examination. The first time she was speaking of her love affair, and the second time occurred after I asked her point blank if she had ever had sexual intercourse. The tears flowed readily but there was no sobbing. Throughout her talking there were also the little pauses and accelerations of respiration that one associates with emotion, and her voice was inflected with the different phases of her story. Once or twice her face became slowly suffused with a blush. *That is to say, were one to judge by face, voice, laughter, tears, respiration and capillaries of the face, by the objective manifestations of emotion, this patient was continually emotional.*



It will be advisable to consider this patient's organic and emotional "feelings" in detail, though possibly it will become monotonous to repeat after each item that there was no feeling.

*Organic sensations.* These, as is stated, are prior in evolution and need to the emotions. "They—that is, (hunger, thirst, need of sleep, fatigue, etc.), express a lacking and deficiency; the anatomical element, the tissue, the organism has need of something . . . All these needs have a point of convergence—the preservation of the individual; to use the current expression—we see in them the exercise of the instinct of preservation."

*Hunger.* "Though I had a good appetite previously I no longer have a desire for food,—no hunger. I get faint, weak if I go long without food. I have fasted for a day and have had no appetite, though I became unable to work. It is my reason and habit that brings me to the table. When I eat I have no pleasure, though my digestion is good."

*Thirst.* Her throat goes dry and she is uncomfortable, but the sensation is not the composite indescribable state we call thirst. "Hot weather makes me uncomfortable if that is the word, for it isn't discomfort as I knew it. A drink of cool water gives me strength, but pleasure is lacking."

*Fatigue.* The alteration here is remarkable. Before the change fatigue was easily reached, was painful, prolonged and accompanied by mental and physical prostration. "This I never feel any more. In fact, I am much stronger than ever I was. I can work harder, walk farther, do more than ever I hoped to, yet what would I not give to be really tired."

"And when I rest these days there is no feeling of recuperation. When the day has been hot and I am weak, and I am sitting where a cool breeze strikes me there is not the delicious feeling of coolness." Relaxation and rest have no pleasure, just as exertion has no pain.

*Sleep.* "I can sit up all night and not feel sleepy. I do not sleep half so well as before. When I sit up too late, even for me as I am now, my face feels drawn, and I am hollow-eyed. I go to sleep because I have reason, but not because there is sleepiness." What is lacking is the pain of great sleepiness, or the delicious languor of moderate somnolence.

The change in these fundamental organic sensations has not as yet brought physical disorder because intelligence, habit, and the pressure of social custom force her to eat, drink, rest and sleep in about the same way as before. Except for the lost pleasure, which is a serious matter, this side of her condition has

some compensation, which is added to when we consider her reaction to noises and annoyances. There is, of course, a fundamental difference between these two forms of displeasing occurrences, but it is convenient to consider them together. "My nervousness was extreme." A sudden noise made her tremble, grow pale, sent her heart racing, and her breath became gasping. The fear was intense and persistent, and interfered with digestion and rest. Now such a noise may make her jump, though this occurs but seldom, but nothing else happens. The "nervousness" is gone, as is also exemplified by the reaction to petty annoyances. Whereas little discords, little troubles, little interferences with her comfort were formerly reacted to with undue and prolonged emotion now they pass her over. Psychic pain is diminished just as is psychic pleasure. (I use the term psychic pain and pleasure though understanding fully that all pain and pleasure are psychic).

This brings us to a consideration of the emotions properly so called. A theoretical difficulty lies in the classification of the emotions, but for practical purposes I am following Shand's scheme. One may cavil at his inclusion of joy and sorrow as primary emotions on the ground of Ribot's objections voiced years ago, that common pleasure and pain, respectively, could not be excluded as the basis of these emotions.

*Joy.* "None whatever," she says. A state of general "anhedonia," to use Ribot's phrase, prevails, except for this vital difference that there is not a general depression such as he described in his cases. The big sources of pleasure, such as—food, warmth, friendship, love; the asthetic sources—music, the theatre, art, have no effect. "I go to a musicale out of habit, out of a restless seeking, with no result." *The pleasures of anticipation and of realization, of activity and of relaxation, the little things which really give variety, color and joy to life have disappeared.*

As has been above indicated there are many cases where joy and pleasure disappear. In the depression of Manic Depressive Insanity, in the fear states, in the anxiety and agitation of Involutional Melancholia, and in deep sorrow or great worry the capacity for enjoyment vanishes. *But another emotion, or group of emotions, replaces it, in fact, the individual personality is nothing but an emotion.*

Most extraordinary was the reaction to fearful objects. Once when she was on a lonely road an automobile came suddenly hurling on her. She screamed and ran to one side, trembling; yet there was no fear consciously, it was as if someone else had

screamed. The cry, the flight instinct were evoked with unerring promptness, but the "feeling" was gone. Or rather, phrasing it more generally, the vaso-visceral, the motor response was good, the affective reaction was absent.

It would be superfluous to repeat what has been said in relation to anger, sorrow, disgust, curiosity, wonder, reverence—the sentiments love, hate, etc. The motor side of all these emotions and sentiments is present, the affective is gone. "I am as in a dream, an automaton, walking without joy or sorrow, though I laugh and cry . . . Yet I am awake."

A very curious reaction occurred when I asked her, as has been previously stated, if she had ever had sexual intercourse. First she cried, then looked at me with set mouth and cold eyes, her slender body held erect—then she reproached me for asking the question. "How could you suspect me; why did you ask it," she repeated over and over again. Her attitude, her tears, her voice and words all indicated injured pride, anger, reproach, yet she disclaimed any real feeling.

"Is there any difference between when you cry and when you laugh?"

"The face feels different, the chest feels different, but I am the same."

When she went to bid the man she loved good-bye just before he left as a soldier to France, the organic electrical sensations previously experienced were gone. She cried, but yet was not sorry—"the tears came of themselves." "I do not wish for his return nor for his death. I have neither love nor hate. I think of him very much, much more than of anything else, except the change in me." Once she saw a company of soldiers with heavy packs slung on their backs, rifles over their shoulders, marching behind the Flag. The grim faces, the sturdy khaki-clad figures, the solemn booming drum, the banner streaming in the breeze, the applause of the people brought a "lump" to her throat, and the tears stood in her eyes so she could hardly see.

What should be touched on here, is the absence of altruistic interest and emotion. It is common enough in sorrow or in anxiety for the altruistic interests to disappear. Such people as in the case of the tortured housewife, whom I have described in "*The Neurosis of the Housewife*," often lose the capacity for affection, for attachment to others. Anxiety and sorrow have more often rendered the character more egoistic than added to its altruism. For my patient affection for others



is not felt. Even the tender feeling which connects us with the weak or helpless, especially children, is not present; and formerly she "adored" children. She carries out her social obligations, her duties from habit, and a perception of its necessity; she acts automatically, but feels no dependence upon others, nor desire to help them.

"Did you feel patriotic as you watched the men march?"

"No, I understood what was going on, yet felt nothing."

The absence of the affective life is not complete because of the curious fact that the absence is essentially something disagreeable, an intense boredom. "I wish I were depressed, or had a great grief, anything at all. I would like a little pleasure, and I would take a great deal of grief for it. I don't want to die because being dead must be like I am now." The absence of the familiar, the dissociation between manifestation of emotion and the entire feeling has brought a persistent, unending inquiry into the course of it all. This is what brought her to the clinic, she came primarily to find out what the matter was. "Had she a disease of the sensory nerves; if so, how came it that she felt pain and cold and touch? Was there a place in the brain where emotion was felt, and could I tell if she had had a hemorrhage that night—five years ago? Is there a lesion of the heart, or of her body organs, that may be discovered and remedied?"

It must be emphasized that there are none of the ordinary signs of a psychosis. There is no dementia, and no hallucinations nor delusions are to be elicited, (unless this absence of feeling, this apathia is delusional). Once I thought that she had some idea of power, because she said that if one really loved a man sincerely he must love in return; but this proved to be a naivette, in keeping with her childish voice and manner. It might be claimed that she is pretending that she has no feeling, or that she deceives herself. As to the former, there would be no reason for her to consult a clinic, and to come time after time with the same story and never to change nor to modify her statement. As to the latter, that is—that she deceives herself, I doubt if one can deceive oneself that one has no feeling. The most primary fact in consciousness is feeling, and self deception would imply that she had no memory for her feelings. This would be a localized memory defect, just as remarkable and just as difficult to explain as the absence of feeling. I am convinced from observing her, and from all the setting of the case, that she is sincere, and her account is precisely such as would occur if there

were a possible dissociation of feeling from motor manifestations and situations.

At her last visit she happened to get hold of her record and read it. Since then she has not appeared, and it is possible that the fact that her case was being minutely recorded made her determined not to come again. At any rate, so her case stands at present. Her main purpose is to recover her feelings, her emotions, so that she may again love the man she has been denied, so that she may again feel hunger, thirst and fatigue, as well as pleasure at a concert, or the joys of satisfaction. It will be objected that no psychoanalysis has been carried out, no hidden sub-conscious emotional life uncovered, no complexes, perhaps dating back to infancy, have been disclosed as dissociating the personality. My answer is that I have not had the time to attempt this, had I had the inclination. I am one of those who am not convinced that the technique of psychoanalysis—the so-called free association method, which assumes that free associations are possible), or that the interpretation of dreams have the value that have been given to them in recent years. I frankly confess that I do not believe in complexes which operate from childhood on, though I am a strong believer in personality trends, disproportionate emotions and visceral reactions, altered or absent inhibitions, wrongly directed or mistaken purposes, and imperfect or disharmonious intelligence. These are the factors which determine conduct to me, and the minutiae of life are fruits of these things rather than their causes.

#### THEORETICAL CONSIDERATIONS

The following psychiatric conditions constitute the main groups in which change in emotions is conspicuous. Paragraph First, those in which there is quick change from the exaggerated expression of one type of emotion to another. For example,—in *Hysteria*, from tears and sorrow to laughter and apparent joy. Here it is doubtful whether the feeling tone corresponds to the expression. Most observers believe there is a shallowness of emotion as compared with the exaggerated expression. In children, of course, there is extremely rapid oscillation from one emotion to another, because there are no controlling reservoirs of feeling. Paragraph Second, those conditions from which the change from normal is of periodic predominance of one or another mood. The depression in the

corresponding phase of Manic Depressive Insanity to its excitement or exhilaration, or a cycle, with first one and then the other. This so-called, "Cyclothymia" seems on the whole to be accompanied by adequate feeling tone, and, as is well known, is often associated with ideational trends, that is—delusions corresponding to the mood, and often perceptual disturbances, such as—illusions and hallucinations.

Third, a group of cases where joyful or pleasurable feeling is absent. The "anhedonia" of Ribot, often found in the Psychoneuroses (Cyclothymic type), without delusions and without hallucinations, with insight, without very deep depression, though with a great deal of rather sad, restless, worrisome thinking. This type of disease is often accompanied by a loss in the feeling of reality. There is, what I have called above "circular thinking," a wearying around of thoughts that goes almost automatically, and tends to become independent of the personality. The expression of emotion is adequate, but mostly corresponds to what may, by a stretching of the word, be called emotion of weariness or discouragement.

Fourth, there is the apathy, or lack of interest in things psychic, of Dementia Praecox. But here there is this fundamental difference from the case here cited, and that is there is no expression of emotion and no recognition of the external world. Fear is not expressed because fear is not felt, and there is no laughter nor tears because apparently there is neither joy nor sorrow. The individual has withdrawn himself from the world, to the shell-bound mood we call apathy.

Fifth, a group of cases where with organic brain disease, with injury to the basal nuclei, there is uncontrollable and spasmodic laughing and crying without other internal feeling or any event or thought to evoke the emotions. It is this group of diseases that has given rise to the theory that the seat of the expression of the emotions is in or around the optic thalamus or the lenticular nucleus.

Sixth, the case I have described is of a type which I do not find in the literature, though I confess I have not extensively searched through it. What seems to me important is that the *emotional expression* seems *reflexly* excited by the environment, and conduct in more or less adequate conformity to the outward event occurs, and yet no feeling results. It seems, as one searches into every day life, that it frequently occurs in incomplete measure, that emotional expression and conduct are out of harmony with inner feeling. One frequently has a lump in the



throat, and tears in the eyes without real sorrow, one often has the chilly feeling and weakness of fear without the so called fear. Men sometimes instinctively fly at a sound or rush to combat at sight of a foe, *before* they feel either fear or anger. In other words, though the vaso-visceral manifestations, the instinctive conduct, and the affective accompaniments are usually firmly linked together, they need not be, *and this case is one of permanent dissociation of affectivity from the other links of emotion.\**

We may regard emotion in something the following manner—an outward phenomenon stimulating sense organs distributes its effects as follows: (1) Certain motor mechanisms are released or tend to be released, unless inhibited. These are either reflexive or instinctive motor mechanisms. (2) Simultaneously, or nearly so, there is a vaso-visceral excitation, causing changes in heart, pulse pressure, respiration, vaso-motion, adrenalin distribution, visceral tone, which I have called here the vaso-visceral part of the emotion. (3) There is a cerebral excitation, arousing memory centres, inhibition centres, and the cerebral organs of higher function, which tend either to further the “natural” instinctive or reflexive conduct, or else to modify or inhibit it. (4) As a result possibly of all these processes, but more likely mostly related to the vaso-visceral changes, the affective reaction arises, the feeling proper. *It is very possible that for the particular occasion the feeling has no relation to the immediate conduct but it is the supreme measure of value for the personality and thus becomes the guide, through its effect on ensuing cerebration, to future conduct.* Though possibly an epiphenomenon in so far as its immediate value is concerned it becomes the *thing lived for*.

\*It has been suggested to me that the pseudo-affective reflexes of Sherrington have some bearing on altered emotional states. It is hardly safe to draw conclusions from the emotions of animals, largely because we have no definite means of understanding what they feel. In fact, we are able to study nothing but the expression of their emotions. In the experimental animal especially, changes are set up which are at least in part totally unknown to us. Indeed the very word “pseudoaffective” emphasizes the fact that possibly we are dealing with something only resembling emotions.

## CONCERNING HAMLET AND ORESTES<sup>1</sup>

BY JOHN T. MACCURDY, M. D.

**A**LTHOUGH it is only in recent years that the problem has been scientifically studied, psychiatrists for generations have recognized that there is a tendency for similar ideas to present themselves in the delusions of the insane. In fact, this relative uniformity is one of the phenomena which aid in classifying psychoses and bring some order into our conceptions of what would otherwise be a lawless confusion. A more startling discovery is now a commonplace with students of mythology and folk lore: primitive rituals, savage traditions, modern superstitions, all concern themselves with themes so much alike as to be almost identical even in detail; a uniformity independent of geographic or temporal contact. Finally, to correlate these facts, appears the modern doctrine of the unconscious, which asserts that these imaginings are part of all of us, savage or civilized, sane or insane, and that "autistic" thought can run in certain channels only. How far this dogma may be scientifically grounded in fact is a problem whose solution demands extensive research. This much, at least, is certain: it is a question in which psychiatry is vitally interested, for refinement in diagnosis is bound to rest more and more on the content of the productions of the insane.

In drawing a parallel between the sagas of Hamlet and Orestes, Murray has done nothing new. Rank<sup>2</sup> pointed this out two years before. For psychiatrists the interest of his work lies in his treatment of the subject and in its being done independently<sup>3</sup>. Particularly noteworthy is the prominence he gives to the madness of these traditional heroes.

He says that his problem " . . . concerns the interaction of two elements in Literature, and especially in Drama, which is a very primitive and instinctive kind of literature: I mean the two elements of tradition and invention, or the unconscious and the conscious." Obviously Murray is regarding the question from a frankly psychological standpoint, and so, naturally, he proceeds to prove that the essentials of Shakespeare's Hamlet were present in English literature before the

<sup>1</sup>Hamlet and Orestes: A Study of Traditional Types, by Gilbert Murray. The Annual Shakespeare Lecture (1914) of the British Academy, published by the Oxford University Press, American Branch, New York.

<sup>2</sup>Das Inzest-Motiv in Dichtung u. Saga, Vienna, 1912.

<sup>3</sup>Personal communication.

dramatist's time, and had been Scandinavian tradition for centuries. Orestes was, of course, a fabulous hero, even in Homer's time, whose tale was wrought into various tragedies by the Greek dramatists, just as Shakespeare used the Hamlet saga as the ground work for his play. There are, therefore, two phenomena to be correlated: the similarity of the basic myths (there being no contact between the early Greeks and the primitive Northmen) and the similarity of the details in the Greek and English tragedies.

The essential identity of the two heroes is next outlined. As to the general situation: "In all the versions, both Northern and Greek, the hero is the son of a King who has been murdered and succeeded on the throne by a younger kinsman . . . . The dead King's wife has married his murderer. The hero, driven by supernatural commands, undertakes and carries through the duty of vengeance." There is always a shyness about killing the mother as part of this vengeance. "In all the versions the hero is in some way under the shadow of madness. This is immensely important, indeed essential, in his whole dramatic character."

We are particularly interested in this phase, so it may be well to quote the salient features of this psychosis. "His language is strange and broken . . . he is a haunted man, . . . he sees visions which others cannot . . . he indulges freely in soliloquies, . . . he is subject to paralyzing doubts and hesitations, alternating with hot fits." In the Hamlet of the sagas there is a pretence of being a "fool." In this "fool" the symptoms are grossly represented, but can all be traced in the Orestes or Hamlet of the dramatists.—"He is simply a Fool, a gross Jester, covered with dirt and ashes, grinning and mowing and eating like a hog . . . ." He . . . "laughs in pretended idiocy to see his brother hanged," . . . "remained always in his mother's home, utterly listless and unclean, flinging himself on the ground and bespattering his person with foul dirt." "Besides being dirty and talking in riddles, the Fool was abusive and gross in his language . . . [His] language is habitually outrageous, especially to women. This outrageousness of speech has clearly descended to Hamlet, in whom it seems to be definitely intended as a morbid trait. He is obsessed by revolting images. He does

Like a whore unpack his heart in words  
And fall a-cursing like a very drab,



and he rages at himself because of it."

Seclusiveness and sex antagonism mark both the make-up and psychoses of these psychopathic heroes. Both Hamlet and Orestes are prone to be cynical about women. Orestes denies blood relationship with his mother. "Both heroes also tend—if I may use such an expression—to bully any woman they are left alone with. Amlodi in Saxo [an early Hamlet] mishandles his foster-sister . . . and utters violent reproaches to the Queen . . . Hamlet bullies Ophelia cruelly and "speaks daggers" to the Queen. He never meets any other woman. Orestes is very surly to Iphigenia; draws his sword on Electra in one play, and takes her for a devil in another; holds his dagger at the throat of Hermione till she faints; denounces, threatens and kills Clytemnestra and tries to kill Helen. There are not many tragic heroes with such an extreme anti-feminist record."

Later in his paper Murray mentions that the Hamlets of the sagas slept in their mothers' chambers.

If these heroes were "seclusive" as far as women were concerned, this attitude did not extend to those of the same sex. Murray does not fail to note that both Hamlet and Orestes had warm men friends to whom they were devoted.

These descriptions are those of laymen. How would a modern psychiatrist describe this accumulation of symptoms? In the first place, there is the make-up. The hero is definitely seclusive, keeps at home, sleeping in his mother's chamber and makes no friends with the opposite sex. More than that, he is actively antagonistic to women, but has one strong male friend. The factor which seems to precipitate the more active psychotic features of the disease is a family tragedy—the death of the patient's father. In the psychosis the symptoms are as follows: he hallucinates, often with a grossly sexual content, and has ideas of reference, is "scattered" in his speech, has inappropriate affect, sits by himself and talks to himself, shows queer behavior with sudden, unexplainable assaultiveness; finally, he is filthy in his habits.

No one could miss the diagnosis of dementia praecox when the symptoms are outlined in these terms, and, even as given by Murray, the clinical picture is more plainly presented than in many anamneses. We find every symptom necessary to a diagnosis, and, what is more remarkable, none that do not fit the diagnosis.

Further similarities between the two heroes appear in both

being away from home when the initial murder occurs, in both having escapes from death at sea and in both being "a good deal connected with the dead and graves and ghosts and funerals." [These are characteristics to which we shall return later.]

The other characters in the plays are also paralleled by Shakespeare and the Greek dramatists. The father in each case is "idealized and made magnificent." With many characteristics in common one can say that he is (to the hero, at least,) a superman. Common to the two situations is the father's burial without religious rites, and that his spirit returns or is summoned by the survivors. [This might be compared to the importance of a parent in the psychosis, who is equally imminent whether actually living or dead.]

The mother in the Hamlet stories is a curious woman who loves her husband, is vaguely implicated in his murder, marries the murderer and yet is sympathetic to her first husband's avenger. The identity of the characters in the two myths ends at this point, but Murray elaborates a parallel by introducing a cycle of usurpation plots, of which Orestes is an offshoot, where the mother has more of these characteristics. In one of these the riddle is told—Oedipus marries his mother when the father is slain.

"I feel as I look at these two tragedies that there must be a connection somewhere . . . There is none between the dramas, nor even directly between the sagas; but can there be some original connection between the myths, or the primitive religious rituals, on which the dramas are ultimately based? And can it be that the ultimate similarities between Euripides and Shakespeare are simply due to the natural working out, by playwrights of special genius, of the dramatic possibilities latent in that original seed?"

This "original seed" he finds in the early Greek or pre-Greek legends of Ouranos, who was cast out by his son Kronos, the latter being helped by his father's wife Gaia, and of Kronos being in turn ejected by Zeus with the aid of his Queen mother Rhea. The same fate was predicted for Zeus if he married Thetis, which he discreetly refrained from doing. "In the above cases the new usurper is represented as the son of the old King and Queen. Consequently the Queen-mother, though she helps him, does not marry him, as she does when he is merely a younger kinsman. But there is one great saga in which the marriage of mother and son has remained, quite unsoftened and unexpurgated. In Thebes, King Laius and his wife Jocasta

knew that their son would slay and dethrone his father. Laius orders the son's death, but he is saved by the Queen-mother, and, after slaying and dethroning his father, marries her. She is afterwards slain or dethroned with him, as Clytemnestra is with Aegisthus, and Gertrude with Claudius."

Murray has no hesitancy in allying these usurpation myths with "the ritual story of what we may call the Golden Bough Kings," a story that lies at the root of many religions. These divinities, as Frazer has shown, are personifications of the seasons. A Greek scholar, Hermann Usener, identified Orestes as a Winter God some years ago. Murray then adduces evidence to show that Hamlet and his precursors were heroes in a mythology with similar ritual ideas. The wife-mother is no other than Mother Earth, who marries Spring, is fruitful in Summer, only to be carried off by the Interloper Winter—the God of Death. Having reached this conclusion, he discovers that a number of Norse mythologists had already identified Hamlet with Winter and his story with "the world-wide ritual battle of Summer and Winter." Murray smooths over the horror of the incest motif running through these myths by saying it is only natural for Mother Earth to remarry.

In his conclusions, he says there seems to be " . . . a great unconscious solidarity and continuity, lasting from age to age, among all the Children of the Poets, both the Makers and the Callers-forth, both the artists and the audiences. In artistic creation, as in all the rest of life, the traditional element is far larger, the purely inventive element far smaller, than the unsophisticated man supposes." Second, he claims that in spite of an almost infinite variety of settings, a basic theme shows an extraordinary durability when kept alive by tradition. These themes stir "certain very deep-rooted human instincts." It is for this reason, he thinks, that any creative work with such a motif awakens a kind of recognition even in us—". . . there is something which tells us we have known them always." Finally, he touches on one aspect of the problem which is of intense interest to psychiatrists, *viz.*, the relation which the settings of the original theme have to reality. In each age the story told is acceptable to the hearer as "The Sort of Thing that Might Happen." [This recalls the fact that where the sense of reality is lost, we have, in some psychoses, delusions that are almost identical with beliefs accepted in bygone generations.] The essence of literary art he finds to lie in " . . . the power of preserving due proportion between these opposite elements—



the expression of boundless primitive emotion and the subtle and delicate representation of life."

If we accept this last formulation, we can see why artistic creation is so often allied to abnormality; let the primitive emotion gain the upper hand, let the feeling for reality once relax, and we have, not genius, but insanity.

It would be wrong, however, to glean only this wide generalization from Murray's essay, and one cannot resist the temptation to comment further. As has been mentioned, the occurrence of the "Oedipus complex" in both Hamlet and Orestes has been studied before. Murray introduces two new ideas: that Death is a prominent feature in both tragedies: and that both hark back to the ritual battle of Summer and Winter. Whether the latter is the original basis of the Oedipus myth, or whether incestuous longings are themselves primary, will probably remain a subject for polemical discussion during many years. The ideas of death are certainly of more direct interest to the psychiatrist.

Murray seems to be interested only in the death motif as associated with the hero. His conclusion is that he is Death himself, that he appears, a powerful avenger, after a symbolic death (supposed to be absent or dead by the other characters). The association of horrible power with the dead is common in crude ghost stories, and frequently appears in tales of mystery where the malignant agent turns out in the denouement to be one who has been considered dead. This approaches the idea of rebirth with new power which is met with not infrequently in the psychoses.<sup>(4)</sup> It is surprising that Murray fails to comment on the fact that the most dynamic character in both the Hamlet and Orestes dramas is the dead father.

Death is a thought of no less influence in our unconscious than in our conscious lives, though it is more often welcomed in the latter than in the former. One form of the unconscious idea is of great importance both to criminology and psychiatry: it precipitates many double tragedies—murder and suicide—and is often present in connection with stupors.<sup>5</sup> This is the unconscious fantasy of "dying together," of leaving the difficulties of this world for an eternal union in the carefree beyond. In

<sup>4</sup>In Vol. VIII, No. 6, of the *Journal of Abnormal Psychology*, the reviewer published an example of this. The patient announced to his friends that he was Rip Van Winkle come back to life, whereupon he developed a manic-like state in which he gave utterance to delusions of great and picturesque power.

<sup>5</sup>For material as to the stupor reactions, the reader is referred to a study to be published shortly by Dr. August Hoch and Dr. George E. Kirby.

real life the murdered victim is usually a mistress, sometimes a wife; in the psychosis it is the mother (or, with a woman, the father). A psychiatrist seeing Hamlet well given cannot fail to be impressed with the air of solemn ecstasy pervading the last scene when Gertrude and then Hamlet die. He recalls, too, that Hamlet insists on getting into Ophelia's grave. This mood of ecstasy is a frequent accompaniment of the idea of heavenly union when this occurs in the psychosis.

But if we wish to find elaboration of this theme we must turn to Orestes. We read in Aeschylus that Electra and the chorus speak frequently of the life Orestes is to lead after killing his mother. The hero never does this; on the contrary he says: "And for that dishonouring she shall pay her punishment: by the will of the Gods, by the will of my hands: oh, let me but slay, and then perish!" He kills her and goes abruptly into a psychosis, the nature of which is well described. But the theme is not exhausted. After his recovery<sup>6</sup> he and his sister talk of dying together and being buried in one tomb; he compares their embrace to the farewell of husband and wife. He tries to kill Helen, who is snatched away by the Gods. Then he holds Hermione as a hostage with a dagger at her throat. Apollo appears and announces

"Hermione, at whose throat is thy sword,  
Orestes, is thy destined bride."

to which he answers

"Lo, from the sword Hermione I release,  
And pledge, when her father bestows, to wed,"<sup>7</sup>

With such a love of death it is not unnatural he should cheerfully wed the woman he was about to kill. It is not uninteresting to note that "Hermione" was the surname of Persephone in Syracuse,—Persephone, the Greek prototype of the divinity of Summer, who is carried off to live during the Winter in the underworld. Orestes then is Hermione's Pluto.

Now what of his psychosis? There is considerable description given and this is unequivocally that of a stupor!

*Electra*.—

Sleepless I sit beside a wretched corpse:

For, but for faintest breath, a corpse he is.

<sup>6</sup>Euripides' *Orestes*, lines 1037-1055.

<sup>7</sup>Translation of A. S. Way, as are the following quotations.

*Helen.*—

How long hath he so lain upon his couch?

*Electra.*—

Ever since he spilt the blood of her that bare him [Six days.]

*Electra.*—

So long is it since he hath stilled him in sleep to lie.

*Chorus.*—

How is it with him? . . .

*Electra.*—

Yet doth he breathe, but his moans wax weak.

*(In the lines following this, ELECTRA expresses a fear that the "wild outcry" of the CHORUS will wake her brother. He stirs slightly, but the CHORUS repeatedly points out to her that he continues to sleep.)*

*Electra.*—

. . . . . vouchsafe the grace  
Of the peace of sleep to his resting place.

*Chorus.*—

Tell, what end waiteth his misery?

*Electra.*—

Even to die,—what else should be?

For he knoweth not even craving for food.

*Chorus.*—

Look, maid Electra, who art at his side,  
Lest this thy brother unawares have died.  
So utter-nerveless, stirless, likes me not.

At this point when he is thought to have, perhaps, died, Orestes awakes, grateful for his sleep, but disoriented and amnesic.—

. . . Whence came I hitherward?—how found this place?  
For I forget: past thoughts are blotted out.

The stupor was apparently "interrupted" for in one passage Electra says:

And to this day, the sixth since cleansing fire  
Enwrapped the murdered form, his mother's corse,  
Morsel of food his lips have not received,



Nor hath he bathed his flesh; but in his cloak  
 Now palled, when he from torment respite hath,  
 With brain unclouded weeps, now from his couch  
 Frenzied with wild feet bounds like steed unyoked.

Even when he is free from the stupor, death clings to him.  
 He leaves his bed and meets Menalaus—

*Menalaus*—Gods! What see I? What ghost do I behold?

*Orestes*.—

A ghost indeed—through woes a death-in-life!

*Menalaus*.—

How wild thy matted locks are, hapless one!

*Orestes*.—

Stern fact, not outward seeming, tortures me!

*Menalaus*.—

Fearfully glarest thou with stony eyes!

*Orestes*.—

My life is gone: my name alone is left.

Except for its literary trappings one might expect to meet this description and these data in a contemporary history of a well observed case. Similarly, as we have observed, Murray paints a composite picture of the make-up and insanity of the individual who has incest ideas, and this picture we can recognize as that of dementia praecox with any other psychosis pretty definitely excluded. Here, then, is a curious phenomenon: a thousand years and more before the appearance of psychiatric classifications, minstrels and dramatists ally clinical pictures and mental content with an accuracy which it is only now our ambition to achieve scientifically. Two explanations are conceivable. First, that the poet has seen such psychoses and noted the content which he faithfully represents. This hypothesis can probably be eliminated at once, for, as Murray remarks: “. . . to observe exactly, and to remember and report exactly, is one of the very latest and rarest of human accomplishments. . . . Early man was at the time too excited to observe, and afterwards too indifferent to record, and always too much beset by fixed forms of thought ever to take in concrete facts exactly.”

The second explanation is startling but, apparently, the only possible one. It is that there is some basic, unconscious connection between ideas of a given type and the insanity that accompanies such ideas. The evidence of this correlation goes

farther than the coincidence of given ideas with the more or less stereotyped psychotic reactions. The author whose inspiration comes from a source beyond his ken, groups the symptoms of dementia praecox about the hero whose career is dominated by incestuous tendencies, or paints a stupor when he longs to die with the one whom he loves most deeply. Can we escape the conclusion that the dementia praecox or stupor reaction lies latent in the normal man and is bound to the incest or death idea? Can these ideas come to consciousness as dramatic inventions without the setting of the appropriate psychoses any more than these thoughts can appear as delusions divorced from dementia praecox or stupor? It may be objected that we frequently make a diagnosis of dementia praecox without recording an obviously "Oedipus" content. True, but we are here discussing broad tendencies and we now know pretty definitely that the severity of this disease is roughly paralleled by the baldness with which the forbidden theme appears in the patient's productions.

Psychology has not advanced to a point where it can explain such correlations with any finality, but an attempt may be made to rationalize them. To begin with the simpler—the stupor—problem. The patient who fancies himself dead may dramatize that thought and so produce the symptoms of stupor—a rather hysterical mechanism. It is not hard to imagine the author representing such behavior in the hero. On the other hand, the death idea and the death behavior, so to speak, may both be the product of the same desire, namely, to escape from the torments or task of continued existence. In this case the desire to be done with it all appears as the delusion of death, and at the same time all interest is withdrawn from the environment, normal stimuli cease to cause a response and a condition results which looks like death. Cheap people faint and cheap authors tell of fainting, to avoid some simple, immediate situation. The genius realizes that conscious contacts with a world full of irritation cannot be maintained and breaks those contacts. He represents his hero as failing to respond to any common stimulus, and depicts a stupor.

The situation with the dementia praecox patient or hero may be similarly explained. Incest ideas have become through the ages and for obvious biological reasons most abhorrent to consciousness and therefore highly abnormal. The normal individual is in rapport with real surroundings and his emotional reactions are more or less stereotyped in response to the

environment. This constitutes his normality. If, however, thoughts are intruded on his conscious mind that are foreign to his experience they must be unreal—hallucinations or delusions. In proportion to the extent with which his attention is engrossed by these new ideas is his interest estranged from reality and false values are created. In this way two symptoms arise: the inappropriate affect and scattering of thought. Words lose their common, and take on symbolic meanings, thus producing incomprehensible speech. Similarly, the emotional reaction is appropriate to the symbolic and not to the normal significance of words or ideas.

It is not hard to believe that the dramatist may feel that the hero who is dominated by wishes absolutely foreign to normal ambitions, must be queer, that he must react to unreal voices or sights, find strange meanings in ordinary words and behave in an anomalous way to common stimuli. This is dementia praecox. As an example of how others than the author feel this correlation to be present, it may be noted that every good actress portrays Ophelia with dissociated affect when she becomes mad and talks in a strain previously unknown to her personality. It is this that makes Ophelia's insanity so terribly obvious.

If this hypothesis I have sketched be justified, it will entail an extension in meaning of what we term "psychogenesis." We can no longer merely assume that the symptoms of a given patient have a psychological history and that many patients tend to react in the same way to the same ideas. We must rather think of these ideas lying latent in all of us and there being associated with these ideas a tendency to behave in a manner as appropriate to these thoughts as normal behavior is appropriate to normal thoughts.

But is there anything new in this? Or have I, perhaps, only formulated something which has long been tacitly recognized? The latter, I fancy, is the case. We know that when the psychiatrist cannot give his reason, but still makes a diagnosis of dementia praecox, it is because of the "queerness" of the ideas or behavior presented. Even the layman feels the dementia praecox patient to have a different outlook from that of the manic-depressive case. Pathological exaggerations of mood are so akin to normal emotions and show such gentle transitions that they give even to the untrained observer an impression of being temporary. Queer ideas or queer behavior, however, at once suggest a permanent loss of mental balance.



## ANAL-EROTIC CHARACTER TRAITS

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**P**ERHAPS the most astonishing of Freud's findings—and certainly the one that has evoked the liveliest incredulity, repugnance, and opposition—was his discovery that certain traits of character may become profoundly modified as the result of sexual excitations experienced by the infant in the region of the anal canal. I imagine that every one on first hearing this statement finds it almost inconceivably grotesque, a fact which well illustrates the remoteness of the unconscious from the conscious mind, for of the truth of the statement itself no one who has undertaken any serious psycho-analytical study can have any doubt.

There are, however, two biological considerations, relating respectively to the ontogenetic and phylogenetic antiquity of the physiological process concerned, that should render the statement made above a little less unthinkable, if not actually plausible. One is that the act of defaecation constitutes one of the two greatest personal interests of the infant during the first year of life, a fact which should carry due weight to any student of genetic psychology, for the basis of that science is the principle that all later tendencies and interests are derived from earlier ones, either directly or indirectly; with this may be correlated the circumstance that the alimentary function in general is the most constant preoccupation of all animals other than man. The other is that many of the sexual processes and organs have been derived from the excretory ones, in both the individual and the race, and are very largely modelled on them; in the lower animals, for instance,—and, indeed, partly so even in man—common ducts are used for both. That the primordial function of excretion, and the fundamental association between it and sexuality, should result in far-reaching effects on mental development should not, therefore, be altogether surprising.

The subject should logically be prefaced by a discussion of the facts of anal erotism itself, and even the question of infantile sexuality in general, but so many discussions and illustrations of this are now to be found in the literature that I can deal with the matter here very briefly. The salient features, as elucidated by psycho-analysis, are: The mucous membrane

lining the anus and anal canal possesses the capacity of giving rise, on excitation, to sexual sensations, just as does that lining the entrance to the alimentary tract. The sensations vary in intensity with the strength of the stimulus, a fact frequently exploited by infants, who will at times obstinately postpone the act of defaecation so as to heighten the pleasurable sensation when it occurs, thus forming a habit which may lead to chronic constipation in later life. The pleasure experienced in this way is one which as a rule becomes repressed in very early life, so completely that perhaps most adults are no longer capable of obtaining any pleasure from stimulation in this region, though there are a great many with whom this capacity is still retained. The psychical energy accompanying the wishes and sensations relating to the region is almost altogether deflected into other directions, leading to the sublimations and reaction-formations which are the subject-matter of this paper. I do not propose here to touch further on the varieties of anal-erotic activities or on their importance in regard to education, to psychoneurotic symptomatology, and to the study of perversions, each of which topics would occupy a considerable chapter in itself.

In the article in which Freud<sup>1</sup> originally communicated his conclusions, he confined himself to pointing out the three character traits that are most typically related to highly developed anal erotism—namely, orderliness, parsimony, and self-willedness or obstinacy. These constitute the cardinal triad of anal-erotic character traits, though a number of other attributes have also been described by Sadger and the present writer. As no systematic account of them has hitherto been given, an attempt will here be made to classify them and to point out their inter-relationship. As might have been anticipated, some of them are of a positive nature—that is, they are sublimations which represent simply a deflection from the original aim; while others are of a negative nature—that is, they constitute reaction-formations erected as barriers against the repressed tendencies.

Blüher<sup>2</sup> would distinguish between “defaecation erotism,” or erotism in connection with the act of defaecation, and “anal erotism,” or erotism in connection with any other activities—*e. g.* masturbation, paederastia—relating to the anal region; he holds that the former is invariably auto-erotic, a statement not in accord with the facts of perversion. I would suggest, on the

<sup>1</sup>Freud, “Charakter und Analerotik,” *Psychiatrisch-Neurologische Wochenschrift*, 1903; Reprinted in his “Sammlung kleiner Schriften zur Neurosenlehre,” Zweite Folge, 1909, Cap. IV.

<sup>2</sup>Hans Blüher, “Studien über den perversen Charakter,” *Zentralblatt für Psychoanalyse*, Jahrg. IV, S. 13.

other hand, that, as all allo-erotic manifestations in connection with this region must ultimately be derived from erotism relating to the act of defaecation, there is no reason for introducing a separate term, though a useful distinction may be drawn between the different aspects of the originally auto-erotic anal erotism. One can separate, namely, the interest (and the character traits resulting therefrom) taken in the act itself of defaecation from that taken in the product of this act. This separation of character traits cannot be made quite sharply, it is true, for with some of them both of the interests in question play a part. Of Freud's triad, for example, the self-willedness is doubtless related to the first of the two interests mentioned, and the orderliness to the second, but the parsimony seems to be almost equally determined by both. And when one studies more closely still the relationships of the traits, the same complexity is to be found; the orderliness, for instance, passes over into pedantic persistence in the performance of duties, which is related rather to the first class of interest. Nevertheless, a certain gain in clearness is perhaps achieved by keeping distinct, so far as is possible, these two aspects of anal erotism.

Taking first the attitude of the infant towards the act itself, and the later influences of this on character formation, we find that there are two typical features constantly noted, though, of course, to a very varying extent in different cases. The one is the endeavour of the infant to get as much pleasure as possible out of the performance, the other is his effort to retain his individual control of it in opposition to the educative aims forced on him by the environment.

The first of these endeavours he carries through by postponing the act as long as he can—children have been known even to go to the length of squatting down and supporting the anal orifice with the heel so as to keep back the stool to the last possible moment—and then performing it with intense concentration, during which he greatly resents any disturbing influence from without. Sadger<sup>1</sup> has pointed out how this attitude may be mirrored in later character tendencies. Such people are very given to procrastination; they delay and postpone what they may have to do until the eleventh or even the twelfth hour. Then they plunge into the work with a desperate and often almost a ferocious energy which nothing is allowed to thwart, any interference being keenly resented. Undue sensitiveness to interference is very characteristic of this type, especially when

<sup>1</sup>Sadger. "Analerotik und Analcharakter," *Die Heilkunde*, 1910.



combined with marked concentration out of proportion to the importance of the occupation. A kindred trait is intense persistence on an undertaking once engaged on, from which they allow nothing to divert them—even though considerations arising later may put the desirability or the value of the undertaking in a totally different perspective. Such people are often notorious bores. They are equally hard to move to a given course of action as to bring them from it once they have started on it. They are typically slow-minded and heavy in thought; once they have got on to a topic there is no breaking it off until they have gone up hill and down dale in saying all they want to about it, and in the meantime no one else is allowed to interrupt or get a word in on the matter: if they try to do so they are simply ignored or else their interruption greatly resented. On the other hand, these attributes are often very valuable, for the thoroughness and dogged persistence with which tasks are carried through has its rewards in the quality of the results. Such people often show an extra-ordinary capacity for forcing their way through difficulties, and, through their persistence, get things done in despite of apparently insuperable obstacles. The trait of persistence is often related to pedantry and obstinacy, being half-way between the two. A typical kind of behaviour when such a person is faced with the question of a possible undertaking—for instance, the preparations for a dinner-party, the writing of an article,—is as follows: First there is a period of silent brooding, during which the plan is being slowly, and often only half-consciously, elaborated. At this time not only are they not to be hurried, which would only result in a flustered annoyance, but they keep postponing the preliminary steps as long as is at all possible, until the other participants despair of the performance being ever accomplished, at least in time. Then follows a spell of feverish and concentrated activity, when all interference is resented and nothing is allowed to prevent the programme laid down being carried through to the bitter end in all its details. The self-willed independence that is implicit throughout this description comes to expression in another interesting character trait—namely, the conviction that no one else can do the thing in question as well as the subject himself and that no one else can be relied upon to do it properly. As a result such a person cannot depute work, for he has no faith in its being done adequately unless he attends personally to every detail. Such people are therefore very hard to get on with as colleagues, for, although on occasion they will get through

absolutely enormous masses of work (Napoleon), they are subject to inhibitions during which nothing goes forward, since they refuse to allocate any of the work, however urgent it may be, to a deputy or assistant. There are many historical examples—Napoleon is again one—of persons of this type organising an elaborate system which functions marvellously well while its author, with tireless energy, attends in person to every detail, but which runs the risk of collapse as soon as the master hand is inactive, for, having assumed it all himself he has given no one else the chance of being trained in responsibility. One notes the relation of the trait last discussed to narcissism and exalted belief in personal perfection, an association we shall have to comment on again in considering other aspects of the anal-erotic character.

It is astounding how many tasks and performances can symbolise in the unconscious the act of defaecation and thus have the mental attitude towards them influenced by the anal-erotic character traits when these are present. Three classes of actions are particularly prone to become affected in this way. First, tasks where there is a special sense of duty or of "oughtness" attached, therefore especially moral tasks. Much of the pathologically intolerant insistence on the absolute necessity of doing certain things in exactly the right way is derived from this source. The person has an overwhelming sense of "mustness" which brooks of no argument and renders him quite incapable of taking any sort of detached or objective view of the matter; there is only one side to the question and it is not open to any discussion at all. Secondly, tasks that are intrinsically disagreeable or tedious, towards which, therefore, there is already some counter-will. This class often coalesces with the former one, when the moral duty is of an unpleasant or distasteful nature. A typical sub-group is the kind of task that Americans aptly term "chores," boring routine duties like tidying drawers, cleaning out a cupboard, filling in a diary, or writing up a daily report. This passes over into the third class, in which the task concerns objects that are unconscious symbols for excretory products. Some of these will be enumerated later, but a few may be mentioned here: any form of dust or dirt, anything to do with paper, any kind of waste product, money. With all these groups we may note the alternation of inhibitory procrastination and feverish concentration described above. For example, a housewife afflicted with a marked anal complex will keep postponing the doing of a necessary duty as the

cleaning out and tidying a lumber room until finally she is seized with a passionate energy for the task, to which everything else is subordinated with no discrimination as to relative importance or expediency; similarly with the getting up to date with one's accounts or one's notes, with the arranging of disorderly material, and so on. The most perfect example of all, and one quite pathognomonic of a marked anal complex, concerns the act of writing letters. There are few people who do not at times find it a nuisance to bring their correspondence up to date, but the type under discussion may show the completest possible inhibition at the thought of so doing, and most of all when they have the strongest desire to write a given letter. When they finally succeed in bringing themselves to the task, they perform it with a wonderful thoroughness, giving up to it their whole energy and interest, so that they astonish the long-neglected relatives by producing an excellently written and detailed budget; they despatch epistles rather than write letters in the ordinary sense.

With all these activities the desire for perfection is visible. Nothing can be done "by halves." When an anxious relative begs for news, if only a line on a postcard, the person finds it quite as impossible to grant the request as to write an ordinary letter: he can write only after he has accumulated enough energy to produce a really satisfactory work of art; nothing less will suffice. The same tendency to perfection may further be displayed in the calligraphy of the letter, which is also related to the trait of neatness that will be considered later; such people often evince remarkable care in the fineness and beauty of their handwriting. The lady afflicted with what the Germans call a *Hausfraupsychose* will often find it difficult to attend regularly to the routine tasks of house work, and may neglect and postpone them until the unconsciously accumulated energy bursts forth in an orgy of cleaning activity.<sup>1</sup> These outbursts of activity are commonly followed by a marked sense of relief and self-satisfaction, to which succeeds another fallow period of apparent inactivity.

It is further to be noted that with different members of the type there is a considerable variation in the relative prominence of the two phases of the process. With some, namely, the expressive phase of thoroughness, insistence, persistence, and general energy is the dominant one, whereas with others, it is

<sup>1</sup>Sadger, *loc. cit.*, points out that women are especially apt to display these outbursts periodically at times of suppressed sexual excitement, e. g. in relation to menstruation.



the inhibitory phase of inactivity, brooding, delay, and postponement, which may even extend into temporary or permanent paralysis of various activities—such as complete inability ever to write any letters.

We have discussed so far the consequences of one feature of the infant's attitude towards the act of defaecation—namely, its endeavour to get as much pleasure as possible out of the performance of it; we have now to consider the second, correlated feature—the endeavour to retain his individual control of the process. Like the previously mentioned feature, this also has two aspects—the opposition displayed against any attempt from without to dictate conduct, and the resentment shown against any attempt to thwart conduct has been decided on. These reactions constitute the character trait of Freud's triad which he calls *Eigensinn* (self-willedness, obstinacy), and which may attain a chronic attitude of defiance. The person objects equally to being made to do what he doesn't want to and to being prevented from doing what he does want to. In other words, there is an inordinate, and often extreme, sensitiveness as to interference. Such people take advice badly, resent any pressure being put on them, stand on their rights and on their dignity, rebel against any authority, and insist on going their own way; they are never to be driven and can only be led. As children they are extremely disobedient, there being, indeed, a constant association between defiant disobedience and unmastered anal erotism. Later a reaction-formation against this may develop, leading to unusual docility, but it can generally be observed that the docility is only partial and conditional—that is to say, they are docile only in certain circumstances, when they like and not otherwise, control of the situation thus being ultimately retained by the individual.

A curious sub-group of these character traits depends partly on the attitude described above and partly on the appreciation of value, about which more will be said presently, that the infant sets on his excretory product, in sharp contrast with that of the adult. Many infants feel it as an injustice that what they have so interestedly produced should at once be taken away from them, and this goes to strengthen the resentment against the general interference on the subject, resulting in an intense feeling against any form of injustice. Such people in later life are very sensitive on the matter of exact justice being done, even to a pedantic extent, and on all kinds of fair dealing.<sup>1</sup>

<sup>1</sup>See Ernest Jones, "Einige Fälle von Zwangsneurose," *Jahrbuch der Psychoanalyse*, Bd. IV., S. 586.

They get particularly agitated at the idea of something being taken from them against their will, and especially if this is something that symbolises faeces in the unconscious, as, for instance, money does; they cannot tolerate being cheated of the smallest amount. This complex often also serves to start a fear of castration, *i. e.* of some valued part of the body being taken away, though, of course, this has other sources as well. The concept of time is, because of the sense of value attaching to it, an unconscious equivalent of excretory product, and the reaction just mentioned is also shown in regard to it; that is to say, people of this type are particularly sensitive to their time being taken up against their will, and they insist in every way on being master of their own time.

When, now, these hated intrusions and interferences nevertheless take place, the subject's reaction to them is one of resentment, increasing on occasion to anger or even outbursts of extreme rage. Brill<sup>1</sup> and Federn<sup>2</sup> have commented on the relation between anal-erotic sensations and the earliest impulses of sadism, and I have elsewhere<sup>3</sup> pointed out the importance played in the genesis of hatred by the early educative interference with anal-erotic activities. My communication referred especially to the pathology of the obsessional neurosis; in a subsequent paper Freud<sup>4</sup> confirmed the conclusions there reached, and also pointed out that the combination of sadism and anal-erotism, a high development of which is characteristic of the obsessional neurosis, constitutes a stage in the development of the normal child, one of the stages to which he gives the name "pregenital." Andreas-Salomé<sup>5</sup> also has dealt at length with the importance for later sadism of the conflict between the infant and his environment over the matter of defaecatory functioning. Where this has been very pronounced it may lead to a permanent character trait of irritability, which will manifest itself either as a tendency to angry outbursts or to sullen fractiousness according to the degree of repression and other factors (cowardice, etc). It is interesting that Berkeley-Hill<sup>6</sup> should in this connection refer

<sup>1</sup> Brill, *Psychoanalysis*, Second Edition, 1914, Ch. XIII, "Anal Eroticism and Character."

<sup>2</sup> Federn, "Beiträge zur Analyse des Sadismus und Masochismus," *Internat. Zeitschr. f. ärztl. Psychoanalyse*, Jahrg I, S. 42.

<sup>3</sup> Chapter XXXI of my "Papers on Psycho-Analysis," Second Edition, 1918.

<sup>4</sup> Freud, "Die Disposition zur Zeangsneurose," *Internat. Zeitschr. f. ärztl. Psychoanalyse*, Jahrg. I, S. 525.

<sup>5</sup> Lou Andreas-Salomé, "'Anal' und 'Sexual,'" *Imago*, Jahrg. IV, S. 249.

<sup>6</sup> Owen Berkeley-Hill, "The Psychology of the Anus," *Indian Medical Gazette*, August 1913, P. 301.

to a Tamil saying which runs "A man who has a short temper suffers from piles." Infantile anal erotism that has been inadequately dealt with may be suspected in any one who is the victim of chronic irritability and bad temper, and perhaps the reason why this trait is so often seen in elderly persons of either sex is that in later life, when sexual vigour is waning, there is a tendency to regress towards a more infantile and less developed plane of sexuality; it is known that old people often show other anal-character traits to a greater extent than in earlier life, *e. g.* personal carelessness, parsimony, and so on.<sup>1</sup> The reaction of annoyance and bad temper is especially apt to be brought out by intrusions on the part of the environment of just the sort described above —namely, either when the person is prevented from doing what he has set out to, or when he is made to do what he does not want to. Typical situations are: hindering the person from concentrating on a task which he has gradually forced himself to undertake, and from which he is now not to be deterred; compelling him to part with money or time against his will; pressing and urging him to undertake something at once when he wishes to brood over it, and so on. Finally, in connection with the tendency to anger and bad temper should be mentioned the vindictive desire for revenge when injured or thwarted, which in many people of this type is developed to an extraordinary extent.

It is not hard to see that many of the temperamental traits mentioned above are closely related to narcissistic self-love and over-estimation of self-importance, a fact which indicates the importance of the contribution made by anal erotism to infantile narcissism. I am referring here especially to self-willedness and all that goes with this, the insistence on pursuing one's own path regardless of the influence brought to bear by other people, the resentment at external interference, the conviction that no one else can carry out a given undertaking as well as oneself, etc. Persons of the type under consideration are apt to have a strongly marked individuality, and study of them throws many difficulties in the way of accepting Trotter's views as to the significance of a social or herd instinct.

A character trait that I have not yet been able fully to analyse, but which is certainly related to the foregoing ones, has considerable importance for general happiness and efficiency. It consists of an inability to enjoy any pleasurable situation

<sup>1</sup>On the other hand, Von Hattingberg points out that some of the character traits, *e. g.* obstinacy, may show themselves in childhood only and disappear later; "Analerotik, Angstlust und Eigensinn," *Internat. Zeitscher. f. ärztl. Psychoanalyse*, Jahrg II, S. 244.



unless all the attendant circumstances are quite perfect. People who display this trait are extremely sensitive to any disturbing or disharmonious element in a situation, a satisfactory mood is readily impaired by slight influences, they are—to put it colloquially—easily “put out.” The attitude is often shown in sexual situations, though by no means only here; the striking of a slightly discordant note, the thought of an unimportant duty not attended to, the slightest physical discomfort, these and similar circumstances are sufficient to abolish potency for the time being. They cannot enjoy an operatic performance, a motor ride, a social function, unless they are exactly “in the mood,” and the right mood is only too fickle and erratic. The trait commonly goes with chronic irritability, and its anal-erotic origin is further to be suspected from its relation to the allied characteristic of being unable to settle down to any task until everything is arranged beforehand to the last detail; such a person cannot write a letter, for instance, until every article on the desk is arranged in exactly the right place, until the pen or pencil is precisely in order, and so on—an attitude which is certainly of anal-erotic origin. As may be imagined, such people are, as a rule, not only difficult to live with, but are rarely happy; they worry, they fidget, they take everything too seriously, and their life is a never-ending struggle to get things right, to arrange matters so that they may at last get some enjoyment in spite of all the difficulties in the way. In this connection it is noteworthy that paediatrists<sup>1</sup> have called attention to the fact that children who suffer much from intestinal disturbances in infancy usually grow up to be unhappy, irritable, and unduly serious, *i. e.* into the type just indicated.

Yet another character trait that is often strengthened by anal-erotic complexes is the desire for self-control, especially when this becomes a veritable passion. There are people who are never satisfied with their capacity for self-control and who ceaselessly experiment with themselves with the aim of increasing it. This may take either a physical or moral direction. To the former category belong the people who are always doing things like going without sugar in their tea, giving up smoking temporarily, putting their legs out of bed on a cold night, and indulging in all sorts of ascetic performances in order to reassure themselves of their power of self-control and to “show themselves that they can do it.” In the moral sphere the effects

<sup>1</sup>*E. g.* Czerny, “Der Arzt als Erzieher des Kindes,” 1908.

are, of course, more disturbing still, and need not be enumerated here. Although there are naturally many other sources of these ascetic and self-martyring impulses, one not unimportant one, as I have analytically illustrated elsewhere<sup>1</sup>, is the lasting influence of the infant's ambition to achieve control of his sphincters, his first great lesson of the kind.

Interest in the act of defaecation often leads to interest in the site of defaecation, *i. e.* to the anal canal itself. Without going into the possible effects of this on the sexual development, which are, of course, of considerable importance, I may just mention a few characterological consequences that I have noted in the course of psycho-analysis<sup>2</sup>. The most interesting one is the tendency to be occupied with the reverse side of various things and situations. This may manifest itself in many different ways, in marked curiosity about the opposite or back side of objects and places,—*e. g.* in the desire to live on the other side of a hill because it has its back turned to a given place—, in the proneness to make numerous mistakes as to right and left, east and west, to reverse words and letters in writing, and so on. Another curious trait of the same origin is a great fascination for all underground passages, canals, tunnels, etc., and I have also known the same complex lead to an extreme interest in the idea of centrality; one of my patients was always restlessly searching to discover what was really the exact centre of any town he might be in, and developed many philosophical ideas as to what constituted the very "centre of life," the "centre of the universe," etc.

We pass now to the second of the two categories put forward above—namely, the character traits derived from interest in the excretory product itself. Some of these traits relate purely to this aspect of the subject, but most of those to be next considered relate partly to it and partly to the former theme of interest in the excretory act. They all represent either positive or negative reactions, *i. e.* either sublimations or reaction-formations respectively. To understand them it is essential to realise the primary attitude of the infant towards faecal material. There is every reason to think that, to begin with, this attitude is throughout positive, in contradistinction to the adult one. The infant regards his product as part of himself, and attaches

<sup>1</sup>*Op. cit.*, *Jahrbuch*, S. 587.

<sup>2</sup>*Op. cit.*, *Jahrbuch*, S. 581-583.

to it a strong sense of value and of possession. He soon learns to invest the idea with a negative feeling-attitude of disgust as for something unclean. This comes about more slowly and less completely with some children than with others, depending on the degree of repression. It seems likely that some of this repression may be entirely endogenous, an inherited tendency. It is much more marked in the case of other people's excreta than with their own, with liquid than with solid excreta, and with the sense of smell than with that of touch or sight. Before this reaction-formation develops, the infant's natural tendency—not always indulged in—is to keep and play with the material in question, the two typical forms of which are moulding and smearing<sup>1</sup>. In this stage the infant will produce and smear with excreta as a token of affection and pleasure, a demonstration usually misinterpreted by the recipient and not appreciated at its proper value.

Before we go on to discuss the character traits derived from these attitudes, a little must be said about the unconscious symbols for faeces, on to which the corresponding feelings get transferred. The most natural one is food, this being the same substance in an earlier stage; many idiosyncrasies, both positive and negative, in regard to various articles of diet, *e. g.* sausages, spinach, rissoles, etc, are due to this unconscious association. Another obvious symbol is any dirty material, street-filth (including, of course, dung) soiled linen and other things, dust, coal, house or garden refuse, waste-paper, and, indeed, waste material of all description, for in the unconscious the ideas denoted by the words "waste" and "dirty" seem to be synonymous—the *tertium comparationis* doubtless being that of "refuse." Either disgusting or waste matter related to the body is especially apt to become thus associated. The former one may be illustrated by the material of loathsome diseases, *e. g.* purulent and other secretions, and this is also the reason why a corpse is often a symbol of faeces. Examples of the latter one are hair and nails, parts of the body that are apt to get dirty and which are periodically cast off. Books and other printed matter are a curious symbol of faeces, presumably through the association with paper and the idea of pressing (smearing, imprinting).

The two most remarkable, and perhaps most important, faecal symbols are money and children, and, as they occasion profound surprise to every one who first hears of them, a little may be added by way of explanation. Concerning the money

<sup>1</sup>On the pleasure in smearing see Federn, *op. cit.*, S. 41, and many passages in Stekel's writings.



symbol Freud writes:<sup>1</sup> "Ueberall, wo die archaische Denkweise herrschend war oder geblieben ist, in den alten Kulturen, in Mythos, Märchen, Aberglauben, im unbewussten Denken, im Traume und in der Neurose ist das Geld in innigste Beziehungen zum Drecke gebracht. Es ist bekannt, dass das Geld, welches der Teufel seinen Buhlen schenkt, sich nach seinem Weggehen in Dreck verwandelt, und der Teufel ist doch gewiss nichts anderes als die Personifikation des verdrängten unbewussten Triblebens. Bekannt ist ferner der Aberglaube, der die Auffindung von Schätzen mit der Defäkation zusammenbringt, und jedermann vertraut ist die Figur des 'Dukatenscheissers.' Ja, schon in der altbabylonischen Lehre ist Geld der Kot der Holle." ("Wherever the archaic mode of thought has prevailed or still prevails, in the older civilisations, in myths, fairy-tales, superstition, in unconscious thinking, in dreams, and in neuroses, money has been brought into the closest connection with filth. It is well known how the gold that the devil presented his admirers changed into filth on his departure, and surely the devil is nothing other than the personification of the repressed unconscious impulses. The superstition is also well known that brings the discovery of treasure into association with defaecation, and every one is familiar with the figure of the 'gold-bug' (literally 'excreter of ducats')<sup>2</sup> Indeed, even in the ancient Babylonian doctrine gold was regarded as the dung of hell"). Many linguistic expressions point to the same association. A popular German name for piles is "goldene Ader," golden veins. We speak of a "dirty or filthy miser," of a man "rolling" or "wallowing" in money, or of a man "stinking of money."<sup>3</sup> On the Stock Exchange a man who is hard up is said to be con-

<sup>1</sup>Freud, "Schriften," *op. cit.*, S. 136.

<sup>2</sup>A fairy-tale equivalent is the goose with the golden eggs. For other mythological examples of the association see Dattner, "Gold und Kot," *Internat. Zeitschr. f. ärztl. Psychoanalyse*, Jahrg. I, S. 495.

<sup>3</sup>From an endless number of literary examples of the association I will quote the following two: "I hate equality on a money basis. It is the equality of dirt." (D. H. Lawrence, "The Rainbow," 1915, P. 431).

"More solemn than the tedious pomp that waits

On princes, when their rich retinue long

Of horses led and grooms besmear'd with gold."

(Milton, "Paradise Lost," Book V.).

The association is common enough in erotic art, especially in caricature (because of the connection between contempt and anal erotism). Two examples may be cited from Broadley's "Napoleon in Caricature," 1911: One, by Fores, depicts Napoleon and George III as "The Rival Gardeners;" at the side is a wheelbarrow filled with coins and labelled "Manure from Italy and Switzerland." The other, entitled "The Blessings of Paper Money," is by George Cruikshank; there is a figure of Napoleon withdrawing a large pan filled with gold coins from underneath John Bull, who is being dosed with paper money.

stipated, and similar expressions such as "currency," "liquid money," etc., doubtless come from the same source. In insanity, and, as Wulff<sup>1</sup> has pointed out, also in drunkenness, the association often comes openly to expression, the patient referring to his excreta as wealth, money, or gold. In Browning's poem "Gold Hair: A Story of Pornic," the ideas of hair, decomposition, gold colour, money, and miserliness are brought into the closest association.<sup>2</sup> In Freud's original article on the subject he proffered the opinion that the association is in part a contrast one—between the most valuable substance man possesses and the least valuable,—but it is now known that the connection is a more direct one—namely, that the sense of value attaching to money is a direct continuation of the sense of value that the infant attaches to its excretory product, one which in the adult consciousness is replaced by its opposite, though it still persists unaltered in the unconscious. In a very suggestive paper, Ferenczi<sup>3</sup> has worked out in detail the stages by which the child passes from the original idea of excrement to the apparently remote one of money. Shortly put, they are as follows: transference of interest from the original substance to a similar one which, however, is odourless, *i. e.* mud-pies; from this to one that is dehydrated, *i. e.* sand; from this to one of a harder consistence, *i. e.* pebbles (some savages still barter in pebbles, and there is still in German an expression "steinreich," *i. e.* stone-rich, to denote wealth); then come the artificial objects like marbles, buttons,<sup>4</sup> jewels, etc., and finally the attractive coins themselves (helped, of course, by the value attached to them by adults). In conclusion, I may mention a curious copro-symbol in this connection—namely, one's last will and testament; the association is doubtless the sense of value and the prominence of the idea of something being left finally behind.

The association between children and faeces comes about in the following way: In the young child's spontaneous phantasy the abdomen is merely a bag of undifferentiated contents into which food goes and out of which faeces come. The knowledge that the foetus grows in the mother's abdomen—a fact easily

<sup>1</sup> Wulff, "Zur Neurosensymbolik: Kot-Geld," *Zentralbl. f. Psychoanalyse*, Jahrg. I, S. 337.

<sup>2</sup> In the Norse tale of Bushy Bride the heroine's hair drops gold as she brushes it. For associations in mythology between hair and gold see also Laistner, "Das Rätsel der Sphinx, 1889, Bd. II, S. 147, etc.

<sup>3</sup> Ferenczi, "Contributions to Psycho-Analysis," English Translation, 1916, Chapter XIII, "The Ontogenesis of the Interest in Money."

<sup>4</sup> Some neurotics have an intense feeling that all buttons are filthy objects, one doubtless furthered by the association between them and soiled clothes.

observed by children without its being realised by grown-ups, and later forgotten—leads to the natural inference that it grows out of food, which is perfectly correct except for the initial pair of cells, and then, since the child has no knowledge of the vagina, he can only conclude that the baby leaves the body through the only opening through which he has ever known solid material leave it—namely, the anus<sup>1</sup>. This “cloacal” theory of birth again has its germ of truth, for the vagina and the anus were originally one passage, in pre-mammalian animals. The baby is thus something that in some special way has been created and formed out of faeces<sup>2</sup>; faeces and children are, after all, the only two things that the body can create and produce, and the impulse to do so is remarkably similar in the two cases, especially to a young child whose feelings about its excreta are not yet what our’s are. The child finds in nature plenty of confirmatory evidence for its view that charming things grow out of matter with a bad odour, *e. g.* flowers<sup>3</sup> out of manured soil, etc, this being one of the sources of passionate delight in flowers (characteristically enough, most on the part of girls), which are unconscious symbols for babies. I have elsewhere<sup>4</sup> collected a number of words the etymology of which illustrates the association between babies, faeces, and odour. An otherwise unintelligible symbolism I have noted<sup>5</sup> becomes explicable in the light of the preceding considerations—namely, that the idea of stealing money from a woman can symbolize the idea of begetting a child by her. The association between the ideas of corpse and faeces—both being something that was alive and is dead—may also contribute to the belief that babies come from some one who has died.<sup>6</sup>

The possible reactions to these various symbols are so numerous and complex that they are not easy to classify. The anal-erotic complex is genetically related to two of the most fundamental and far-reaching instincts, the instincts to possess and to create or produce respectively. On the whole they are

<sup>1</sup>This view is usually forgotten and then replaced by the more acceptable one that the baby emerges through the navel.

<sup>2</sup>Clinical examples of this are given by Freud, *Jahrbuch der Psychoanalyse*, Bd. I, S. 55, and Jung, *Jahrbuch der Psychoanalyse*, Bd. II, S. 49. Many examples of the same belief in mythology and folk-lore are quoted by Rank, “Völkerpsychologische Parallelen zu den infantilen Sexualtheorien,” *Zentralbl. f. Psychoanalyse*, Jahrg II, S. 379, 380, 381. The idea has often been depicted in art, of which an example is to be found in Fuchs, “Das erotische Element in der Karikatur,” 1904, S. 85.

<sup>3</sup>On the association between flowers, hair, and odour see Scheuer, “Das menschliche Haar und seine Beziehungen zur Sexualsphäre,” *Sexual-Probleme*, Jahrg, VIII, especially S. 173, and also in this connection a note of my own, “Haarschneiden und Geiz,” *Internat. Zeitschr. f. ärztl. Psychoanalyse* Jahrg. II, S. 383, and Chapter XXX of my “Papers.”

<sup>4</sup>*Jahrbuch der Psychoanalyse*, Bd. VI, S. 192.

<sup>5</sup>*Jahrbuch der Psychoanalyse*, Bd. IV, S. 585.

<sup>6</sup>See Chapter XXXIX of my “Papers.”



opposed to each other, the one being an impulse to keep, the other an impulse to give out<sup>1</sup>, and they may be roughly correlated with the two phases described earlier in this paper—the tendency to keep back and postpone production and to produce feverishly. The character of the person will greatly depend on whether the stress is laid on the one or the other of these two impulses. The question is complicated by the fact that the “keeping back” attitude of the first phase may extend over on to the product itself after it has been brought forth, so that a hoarding tendency ensues. Further, enormous complexities result from the fact that the different attitudes possible vary with different symbols, so that the same person may in one respect show a positive attitude, in another a negative one, in one respect a sublimation, in another a reaction-formation, in one respect a giving out, in another a holding back, and so on. It is therefore only possible to delineate certain general types in a rather schematic way, and to call attention to the more characteristic reactions. At the risk of making some errors of over-simplification, I shall try to group the possible reactions into four, on the basis of two principles: that of the two impulses just mentioned, and that of sublimation *versus* reaction-formation, this one depending on whether the original sense of value is retained or not. Thus we have two groups derived from the “keeping back” or possessing instinct, according as the sense of value is or is not retained, and similarly two with the creative or productive instinct. These four groups will next be illustrated in the order given.

A. I. The most typical sublimation product of the “keeping back” tendency is the character trait of parsimony, one of Freud’s triad; in the most pronounced cases it goes on to actual miserliness. There are two aspects to the trait, the refusal to give and the desire to gather, and with a given person one of these may be much more prominent than the other; he may be either niggardly or avaricious, or both. Such people are mean, and grudge giving or lending.<sup>2</sup> The attitude naturally applies most to the various copro-symbols, *e. g.* money (most of all), books, time, food (food-hoarders!), and so on. The irrational, *i. e.* unconscious, origin of the attitude is often shown by the way in which the person will grudge giving a copper or a penny stamp (which are more directly associated symbols) much more than a considerable sum given by cheque. Sometimes the trait

<sup>1</sup>. It is interesting that Bertrand Russell, in his “Principles of Social Reconstruction.” 1916 should make this opposition the basis of an extensive sociological philosophy.

<sup>2</sup>We appropriately speak of such people as being “close,” “tight,” etc.

is marked only in a limited sphere; a common one is where a quite well-to-do person grudges the cost of the laundry, and resorts to various petty devices to diminish it; the tendency not to change underclothing more than is absolutely necessary is often doubly motivated, consciously by the dislike of parting with money (*i. e.* sublimated dirt), and unconsciously by the dislike of parting with bodily dirt. When such people are compelled to part with more than they are willing to, they display the reaction of annoyance and resentment discussed earlier in this paper; thus when money is stolen from them, and particularly when it is stolen by their being given "bad" (*i. e.* "rotten") money<sup>1</sup>—that is, when they are made to excrete against their will.

The second aspect mentioned is the impulse to gather, collect, and hoard. All collectors are anal-erotics, and the objects collected are nearly always typical copro-symbols: thus, money, coins (apart from current ones), stamps, eggs, butterflies—these two being associated with the idea of babies—, books, and even worthless things like pins, old newspapers, etc. In the same connection may be mentioned the joy in finding or picking up objects of the same sort, pins, coins, etc, and the interest in the discovery of treasure trove. The treasure trove is usually buried underground, which connects with the interest mentioned above in concealed passages, caves, and the like; the interest is also evidently strengthened by other sexual components, *Schaulust* (visual sexual curiosity) incestuous exploration in the body of Mother Earth<sup>1</sup> etc.

A more edifying manifestation of the same complex is the great affection that may be displayed for various symbolic objects. Not to speak of the fond care that may be lavished on a given collection—a trait of obvious value in the custodians of museums and libraries, etc.—, one of the most impressive traits in the whole gamut of the anal character is the extraordinary and quite exquisite tenderness that some members of the type are capable of, especially with children<sup>3</sup>; this is no doubt strengthened both by the association with innocence and purity

<sup>1</sup> *Jahrbuch*, *loc. cit.*

<sup>2</sup> In *Paradise Lost* (Book 8) we read how men, taught by Mammon,

"with impious hands  
Rif'd the bowels of their mother Earth  
For Treasures better hid. Soon had his crew  
Op'nd into the Hill a spacious wound  
And dig'd out ribs of Gold."

<sup>3</sup> It is quite characteristic even of misers to be passionately fond of their children, *e.g.* Shylock, Balzac's Eugénie Grandet, etc., with the former of these, Shakespeare clearly illustrates the equivalency and unconscious identity of the daughter and the ducats.

presently to be discussed, and by the reaction-formation against the repressed sadism that so commonly goes with marked anal erotism. A curious accompaniment of this tenderness is a very pronounced tendency to domineer the loved (and possessed) object; such people are often very dictatorial or even tyrannical, and are extremely intolerant of any display of independence on the part of the loved object.

A. 2. The chief reaction-formation shown in conjunction with the "retaining" tendency is the character trait of orderliness, the third of Freud's triad. It is evidently an extension of cleanliness, on the obverse principle to the saying that "dirt is matter in the wrong place;" presumably it is no longer dirt if it is put in the right place. When marked, this trait may amount to a definite neurotic symptom, there being a restless and uncontrollable passion for constantly arranging the various details of a room until everything is tidy, symmetrical, and in exactly "its right place." One illustration of this familiar trait will suffice: I have seen books, never used, kept on a table, and, although they were all of the same size and looked perfectly neat, the owner could not rest without putting them in the precise order he had ordained as fit and proper; a picture ever so slightly askew would have made it out of the question for him to continue a conversation. Such people are extremely intolerant of any disorder; they are bound to clear away any waste paper or other objects "left lying about." Everything must be put in its proper place, and if possible put away out of sight. A more useful development that occurs in some members of the type is a high capacity for organising and systematising.

In the field of thought this tendency commonly leads to undue pedantry, with a fondness for definitions and exactitude, often merely verbal. An interesting and valuable variety occasionally met with is a great dislike for muddled thinking, and a passion for lucidity of thought; such a person delights in a getting a matter quite clear, has fondness for classifying, and so on.

The intolerance for disorder is closely related to another trait, the intolerance for waste. This has more than one source. It represents a dislike of anything being thrown away (really from the person)—a manifestation of the retaining tendency under consideration—and also a dislike of the waste product because it represents refuse, *i. e.* dirt, so that every effort is made to make use of it. Such people are always pleased at discovering or hearing of some new process for converting waste



products into useful material, in sewage-farms, coal tar manufactures, and the like.

A correlated trait, to which Freud called attention, is reliability, the capacity for being depended on. It is related to the passion for thoroughness and efficiency, with the dislike of deputing, that was discussed earlier in the paper. People having it can be trusted not to neglect any duty or to leave things undone or half done.

*B. I.* In this category comes the opposite of parsimony—namely, extreme generosity and extravagance. Some psychoanalysts would call this type anal-erotics as distinct from the anal character of the former, but it seems to me that they are equally character types derived from anal-erotic complexes, differing only in that one is positive and the other negative. One can distinguish two varieties of even the positive aspect of the “giving out” type according to what is done with the product; with the one variety the person’s aim is to eject the product on to some other object, living or not, while with the other the aim is to manipulate the product further and to create something else out of it. The two will next be considered in this order.

*a.* The simplest type of the former aim may be called a sublimation of the primitive smearing impulse. An unrefined, and usually repressed form of this is the impulse to stain or contaminate, found, for instance, in the perversion known as pygmalionism, the impulse to stain statues with ink, etc., and in the perverse impulse to defile women or their clothing by throwing ink, acid, or chemicals over them<sup>1</sup>; it sometimes lurks behind the erotic passion for young children (desire to contaminate their innocence). Two sublimations of this impulse are of great social significance—namely, interest in painting and in printing<sup>2</sup>, *i. e.* in implanting one’s mark on some substance. Lowlier forms of the same tendency are the common fondness of the uneducated for carving or writing their names, *i. e.* leaving a memento of of themselves which may injure and spoil something beautiful (and therefore spoilable); on the same plane there are innumerable manifestations of this spoiling, defiling impulse, usually associated with destructiveness (Freud’s pregenital sadistic-anal-erotic stage of development)—witness the War.

When, with retention of the sense of value, the original product is replaced by money, jewels, etc., and when, further,

<sup>1</sup> Theinet, “Attentats aux Mœurs,” 1898, pp. 484 *et seq.* Moll, “Gutachten über einem Sexual-Perversen (Besudelungstrieb),” *Zeitschr. f. Medizinalbeamte*, 1900, Heft XIII.

<sup>2</sup> There are obviously other sources, even in the unconscious, for these interests, but the importance of the one here given is not to be underestimated.

the original sexual impulse has developed on to the allo-erotic plane, there is brought about a form of love-life characterised by the overwhelming predominance of the act of giving. It is true that, from both the psychological and physiological basis of love, the greater part of all love-life is modelled on the prototype of giving and receiving, but in the type in question all other aspects of love are entirely subordinated to this one act. Such people are always making presents; they woo their mate by only one method of making themselves agreeable and attractive, by giving her jewels, chocolates, etc., etc. The immature and pre-genital level of this form of love-life is shown by the fact that it is commonest with persons who are relatively impotent or anaesthetic; the usual pair who love in this way is an old man and a young girl, the former having reverted to this infantile level and the latter never having left it.

It is probable that the very desire to impregnate is contributed to by the complex in question (see above for child symbolism), but we are here on a more adult, genital plane of development so that it is only possible to detect traces of the complex in some people.

b. The desire to manipulate the product further and to create out of it leads to various sublimations, beginning with the usual fondness of children for moulding and manipulating plastic material, putty, plastecene, etc. The commonest sublimation is in the direction of cooking<sup>1</sup>, which may later be replaced by an aversion from cooking or continued as a passion for it. It finds extensive application in two other spheres of life, the industrial<sup>2</sup> and the artistic; good examples of the former are metal-moulding, building, carpentry, engraving, etc.; examples of the latter are sculpture, architecture, wood-carving, photography, etc.<sup>3</sup>

B. 2. We have next to consider results of the reaction-formations built up against material that has been emitted, or symbols of this. The most obvious one is a strong dislike of dirt and a passion for cleanliness.<sup>4</sup> Sadger points out that intense dislike of dirt on the body itself is usually indicative of a masturbation complex, the anal-erotic one manifesting itself

<sup>1</sup>See *Jahrbuch*, *op. cit.* S. 568.

<sup>2</sup>It does not seem altogether fanciful to correlate the enormous extension of interest in industrialism that took place a century or so ago with the wave of increased repression of anal erotism that can be shown historically to have accompanied it, especially in England.

<sup>3</sup>Lest it may be thought that any of these conclusions are speculative I may say that every one is based on the data of actual analyses, as are all the conclusions presented in this paper.

<sup>4</sup>Sadger, *op. cit.*

rather in an aversion from dirt in regard to external objects, particularly clothing and furniture—where with neurotics it may become exceedingly exaggerated; he gives as a special mark of an anal-erotic complex the dislike of street dirt and the tendency to lift the skirts specially high from the ground (excepting, of course, the cases of girls where this is due rather to an exhibitionistic impulse). My experience agrees with his in this conclusion, with, however, one modification. I find that the anal-erotic reaction often extends to the *inside* of the body, there being a conviction that everything inside is inherently filthy;<sup>1</sup> I have known such people be unwilling even to insert a finger into their own mouths, and to have the custom of drinking large quantities of water daily with the idea of cleansing the dirty inside of the body.

In striking contrast with the character trait of loving care in regard to objects, which was mentioned above (under A. I.), is the attitude of the present type. Such people, so far from being proud of their possessions and productions, take very little interest in them. They are often quite indifferent to their immediate surroundings, to their furniture, clothes, and so on. As to their own productions, whether material or mental, their chief concern after the process is finished is to get rid of them as completely as possible, and they discard them with no wish to know what becomes of them. This attitude may, through the association explained above, even extend to the children produced, though such cases are rare; when this happens, the woman may delight in the process of pregnancy itself, but take no interest in the results of it.

An extension of this reaction is the exaggerated disgust and aversion sometimes displayed in regard to any idea of contaminating or spoiling. Such people are abjectly miserable at the thought of anything, especially beautiful objects, being injured, spoiled, ruined, and their life in an industrial age is one long protest against the intrusion of man, with all his squalor and ugliness, into the previously untouched spots of nature. The staining of table-linen, the defacement of a book, the injuring of a picture, the growth of a town over what were fields and woods, the post-prandial performances of trippers in the country, the building of a new factory or the extension of a railway—all evoke the same reaction of agonized distress and resentment.

<sup>1</sup>Accompanying this is often to be found a marked hypochondria, especially in regard to alimentary functioning of all kinds.



A variety of the reaction that is very important sociologically is what may be called the morbid purity complex. I refer to the purity fanatics who can only conceive of sexuality as a kind of anal erotism, and to whom, therefore, all its manifestations are necessarily filthy<sup>1</sup>. They have so perverted the very meaning of the word "pure" that it is hardly possible to use it nowadays without exposing oneself to the so often well-founded comment "To the pure all things are impure." My experience also tallies with Sadger's<sup>2</sup> in tracing to the same origin what he calls "the theory of the pure man" that so many neurotic girls hold—namely, the belief that a man is defiled unless he enters marriage with no previous experience of allo-erotic functioning. To such people sexuality is so inherently filthy in itself that it can only be removed from this reproach—if at all—by surrounding it with the most elaborate precautions and special conditions.

A little should be said, in conclusion, of a theme that has so far not been touched on here—namely, the psychological derivatives of the flatus complex, of the infant's interest in the production of intestinal gas. I have devoted a monograph<sup>3</sup> to some aspects of the part played in art and religion by this complex, the manifestations of which are a good deal more extensive than might be supposed. I have shown<sup>4</sup> that in the unconscious the idea of flatus forms important associations with a series of other ideas having similar attributes, notably those of sound, light, odour, fire, breath, speech, thunder, thought, mind, soul, music<sup>5</sup>, poetry<sup>5</sup>, and that a number of mental attitudes towards these ideas is influenced by the association in question. I do not propose to repeat these here, but will simply illustrate them by a few examples. A passion for propagandism of ideas, and a belief in telepathy<sup>6</sup>, may be largely determined by this complex. So may an intense aversion for already breathed air, with a fanaticism for fresh air, a passionate interest in the subject of breath control, and the conviction that breathing exercises afford a panacea for mental and bodily ills. With speech, quite apart from gross inhibitions like stuttering, the influence of the associated flatus complex may extend into the finest details of syntax and grammar; a man, for instance, who was habitually reticent

<sup>1</sup>See *Jahrbuch*, *op. cit.*, S. 580.

<sup>2</sup>Sadger, *op. cit.*

<sup>3</sup>"Die Empfängnis der Jungfrau Maria durch das Ohr: Ein Beitrag zu der Beziehung Zwischen Kunst und Religion," *Jahrbuch der Psychoanalyse*, Bd. VI.

<sup>4</sup>*Jahrbuch der Psychoanalyse*, Bd. IV and V.

<sup>5</sup>It is noteworthy that the anal-erotic complex plays a part in relation to each of the five arts, architecture, sculpture, painting, music, and poetry, as might have been expected from the important contribution to aesthetics in general that is provided by the reaction-formation against anal erotism.

<sup>6</sup>See *Jahrbuch*, Bd. IV, S. 590, u. ff., and also Hitschmann, *Internat. Zeitschr. f. ärztl. Psychoanalyse*, Jahrg. I, S. 253.

in speech, cherished the ambition, which he very largely carried out, of being able so to construct his clauses, on a very German model, as to expel all he might have to say in one massive, but superbly finished sentence that could be flung out and the whole matter done with.

#### GENERAL SURVEY

The number of character traits and interests ranged over in the preceding remarks has been so great, and the account given of them so bald, that it may conduce to perspicuity if I once more review shortly the subject as a whole. One should keep well in mind the two fundamental phases of the process—the first one of “keeping back” and the second one of “giving out” respectively, each of which gives rise to its own series of character traits. With both of them the person strongly objects to being thwarted, to being prevented from either “keeping back” or “giving out,” as the case may be; this attitude may lead to marked individualism, self-willedness, obstinacy, irritability and bad temper. Heavy-mindedness, dogged persistence, and concentration, with a passion for thoroughness and completeness are characteristics equally related to both phases.

Much of the person's later character will depend on the detailed interplay of the attitudes distinctive of each phase, and on the extent to which he may react to each by developing either a positive sublimation or a negative reaction-formation. The sublimations result in two contrasting character types: on the one hand a parsimonious and perhaps avaricious one, with a fondness for possessing and caring for objects, and a great capacity for tenderness so long as the loved person is docile; on the other hand, a more creative and productive type, with active tendencies to imprint the personality on something or somebody, with a fondness for moulding and manipulating, and a great capacity for giving, especially in love. The reaction-formations lead to the character traits of orderliness, cleanliness, pedantry, with a dislike of waste; they also afford important contributions to aesthetic tendencies.

It will be seen that the total result is an extremely varied one, owing to the complexity of the inter-relations of the different anal-erotic components with one another and with other constituents of the whole character. Some of the most valuable qualities are derived from this complex, as well as some of the most disadvantageous. To the former may be reckoned es-

pecially the individualism, the determination and persistence, the love of order and power of organisation, the competency, reliability and thoroughness, the generosity, the bent towards art and good taste, the capacity for unusual tenderness, and the general ability to deal with concrete objects of the material world. To the latter belong the incapacity for happiness, the irritability and bad temper, the hypochondria, the miserliness, meanness and pettiness, the slow-mindedness and proneness to bore, the bent for dictating and tyrannising, and the obstinacy which, with the other qualities, may make the person exceedingly unfitted for social relations.



# IRREGULARITY IN A PSYCHOLOGICAL EXAMINATION AS A MEASURE OF MENTAL DETERIORATION

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THE statement is frequently made that evidence of deterioration in a mentally diseased patient may be obtained from the "irregularity" of the results on a psychological examination. By "irregularity" is usually meant the degree of scatter in the scores on a Binet scale. For example, if a feeble-minded case shows a mental age of nine years on the scale, he usually has no failures below the seven year group of tests, and succeeds on no tests above the twelve year group, while the psychotic patient, in obtaining the same mental age, fails a test which a normal five year child passes, and succeeds on tests of the sixteen year group.

General observation shows something of this sort to be true, but surprisingly little careful and systematic work has been done on the subject. The present paper is a brief report of results in an effort to determine with some exactness the significance and reliability of irregularity as it appears in the examination of mentally diseased individuals. An attempt has been made to develop norms of irregularity, and put the subject on a more sound basis than has hitherto been the case. Then on the basis of an analysis of these results a special differential group of tests within the scale has been formed; for this also norms are presented, which would indicate a very considerable degree of reliability for this special differential unit.

As will be pointed out later, irregularity may not always have quite the meaning which is usually given it. But at least it may be said that it suggests deterioration. And as a measure of the reliability of the mental level indicated by the examination, it would seem to have a wider value than has usually been supposed.

The results here reported are based on a comparison of the irregularity of a group of feeble-minded cases showing mental ages from eight through twelve years with two groups of psychotic persons (dementia praecox and chronic alcoholics) giving the same mental ages. The Point Scale was used. One of the

great advantages of the "point" method, which seems to have been overlooked so far, is the simplicity with which a single and comprehensive statement of irregularity can be obtained<sup>1</sup>.

The irregularity was figured on the basis of table 30, p. 123 of "A Point Scale for Measuring Mental Ability."<sup>2</sup> This table gives the average score in points of the normal child at each age, for each test; the data are the same as those on which the original Point scale norms for mental age were figured. So the average score of eleven year children on test one is 3.0, on test two is 3.8, on test three 2.8, on test four 3.7, etc. And if a given child testing at a mental age of eleven scores 3, 4, 3, 5, on these first four tests, he shows variations from the average or irregularities of 0.0, 0.2, 0.0, 1.3. The sum of these variations on all the twenty tests will be the total irregularity; in the case just instanced this irregularity was 14.6 points. Such a statement of irregularity is easy to obtain, and should be worked out, the writers believe, in all cases, and recorded along with the mental age and coefficient as part of the findings.

Table I gives the irregularities for the different groups as thus figured. The irregularity of 158 feeble-minded cases<sup>3</sup> is shown in the first column, with the average, mean variation, and number of cases at each mental age. In the second column are given in the same way the averages for 67 dementia praecox patients, and in the third column the results for 55 chronic alcoholics. These last two groups were examined at the Boston Psychopathic Hospital.

TABLE I  
TOTAL IRREGULARITY (IN POINTS)

Mental Age	Feeble-minded			Dementia Praecox			Chronic Alcoholics		
	Av.	m. v.	No.	Av.	m. v.	No.	Av.	m. v.	No.
8	17.6	$\pm 2.7$	(30)	20.1	$\pm 1.9$	(4)	20.7	$\pm .4$	(5)
9	18.2	$\pm 2.5$	(60)	20.9	$\pm 2.4$	(19)	24.4	$\pm 3.1$	(9)
10	17.7	$\pm 1.9$	(25)	20.3	$\pm 2.2$	(10)	24.4	$\pm 3.1$	(8)
11	17.0	$\pm 3.1$	(27)	20.4	$\pm 3.7$	(15)	21.8	$\pm 2.9$	(14)
12	17.1	$\pm 2.0$	(16)	18.9	$\pm 2.3$	(19)	19.7	$\pm 2.3$	(19)
Av.	17.5	$\pm 2.4$	(158)	20.1	$\pm 2.5$	(67)	22.3	$\pm 2.4$	(55)

Figures in parenthesis give the number of cases, with total number of cases in each group at the foot of each column. The average mean variation is the average of the mean variations, not the mean variation of the averages.

<sup>1</sup>Pressey S. L. "Distinctive Features in the Psychological Examination of Dementia Praecox and Chronic Alcoholic Patients," *The Journal of Abnormal Psychology*, July, 1917.

<sup>2</sup>Yerkes R. M., Bridges J. W., and Hardwick R. S., "A Point Scale for Measuring Mental Ability," Warwick and York, 1915.

<sup>3</sup>Examined at the Waverley School for the Feeble-minded.

It will be seen that for the feeble-minded the average is quite consistently at 17 points throughout the range of mental ages. For the dementia praecox the averages are also fairly constant, except for the smaller irregularity in the twelve year group. A decrease in irregularity in the upper ages was, in fact, to have been expected; these cases have deteriorated less, and so show less of a break-up in mentality. The results from the chronic alcoholics are less consistent. There is here also in the upper ages less irregularity—of the same significance as the similar results with the dementia praecox patients. But the unevenness of the averages is probably due to the smaller number of cases, and poor distribution among the different mental ages. For the mental ages from eight to twelve, then, a norm of 17 points irregularity for the feeble-minded, 20 points for the dementia praecox, and somewhere around 22 points for the chronic alcoholics would seem indicated.<sup>1</sup> The dementia praecox average three points or 15%, the chronic alcoholics five points or 29% more irregularity.

The large mean variations for all the averages must be noticed, however. The different groups overlap each other very considerably; so 25% of the feeble-minded cases show as much irregularity as the average dementia praecox—but only 10% of the primary aments show as much as the average chronic alcoholic. This overlapping of the groups must obviously be kept in mind. It can hardly be said that the irregularity of the average beginning dementia praecox is very distinctive if 25% of feeble-minded cases show irregularity as great as this. For practical work it is convenient to settle upon some standard of irregularity. Only 10% of the feeble-minded show irregularities over 21 points (the average of the two groups of psychotics). This is suggested as for the present a convenient boundary line of irregularity; all examinations showing more than 21 points may be considered irregular. If under 21 points, the irregularity cannot be looked upon as more than might be expected of a fairly

<sup>1</sup>The mean variations are also averaged in the table, with the idea that the psychotic cases might show a greater scatter about their mean, due to difference in stage of the disease in which different cases might be, to differing effects of the disease in different individuals, and similar causes. So far as the figures go there is no evidence of any such greater variability, but this may be the result merely of the smaller number of psychotic cases.



average subnormal individual where no further factor of mental disease was present.<sup>1</sup>

Mentally diseased individuals thus show a greater irregularity on a psychological scale than do feeble-minded cases of the same mental age; but the differences are not so clear cut and definite as the distinctly different characters of the groups might lead one to expect. A natural supposition was that some tests of the scale were more differential than others, and that perhaps the results on some tests actually cancelled off those on others, thus obscuring the findings. An indication of the differential value of each test could easily be obtained, by working out the irregularity on each test, for each group. This was done; the results showed the greater irregularity of the psychotic cases to be due largely to an especially greater irregularity on tests ten, sixteen, seventeen, eighteen and nineteen.<sup>2</sup> These tests were, therefore, taken as a special differential group, and irregularities on these tests alone used, instead of the total irregularity. The results are given in table II.

TABLE II  
IRREGULARITY: (Differential tests only)

Mental Age	Feeble-minded (158 cases)	Dementia Praecox (67 cases)	Chronic Alcoholics (55 cases)
	Av. m. v. No.	Av. m. v. No.	Av. m. v. No.
8	3.1 $\pm$ .9 (30)	6.7 $\pm$ .4 (4)	6.5 $\pm$ .7 (4)
9	4.4 $\pm$ 1.1 (60)	5.5 $\pm$ 1.0 (19)	7.5 $\pm$ 1.6 (7)
10	5.3 $\pm$ .9 (25)	6.7 $\pm$ .6 (10)	10.5 $\pm$ 1.0 (7)
11	5.0 $\pm$ 1.5 (27)	8.5 $\pm$ 1.8 (14)	9.0 $\pm$ 1.9 (14)
12	5.4 $\pm$ 1.0 (16)	7.3 $\pm$ 1.9 (20)	8.3 $\pm$ 1.4 (17)
Av.	4.7 $\pm$ 1.1 (158)	6.9 $\pm$ 1.1 (67)	8.2 $\pm$ 1.3 (49)

The figures in parenthesis give the number of cases at each mental age. The average mean variation is the average of the mean variations, not the mean variation of the averages.

<sup>1</sup>These figures obviously need much more statistical backing, but may serve some practical use as tentative norms of irregularity. The curves of distribution for the three groups are fairly symmetrical, and it is not likely that further figures will alter the results materially. The chief difficulty in all such work comes from the fact that we know so little about the examination given by the normal and the feeble-minded *adult*. The feeble-minded from whom the above data were obtained were mostly children. The psychotics were, of course, all adults; it is possible that what seems distinctive of the psychotic condition may be merely the result of greater age. However, data which the writer is now accumulating on adult feeble-minded cases do not, so far, bear out such a conclusion; the examinations are surprisingly similar to those given by feeble-minded children of the same mental age.

<sup>2</sup>These tests are in order as follows: definition of familiar objects (the subject is asked to define spoon, chair, horse, baby, extra credit being given for definitions "superior to use"—that is, describing or classifying the object); memory for Binet figures (the subject is asked to draw from memory the familiar Binet designs, after fifteen seconds exposure); absurdities (the subject is asked what is foolish about such statements as "A little boy said, 'I have three brothers, Paul, John and myself.'"); dissected sentences (the patient is told to reconstruct the sentence from such series of words as "to asked paper my I teacher correct the."); definition of abstract words (the patient is asked to define charity, obedience, justice.)

It will be noticed in the first place that while the irregularity on these five tests is only about a third of the total irregularity (see table I), the difference between the average for the feeble-minded and that for the dementia praecox patients is about as large as before, and this difference three-fourths as large for the chronic alcoholics. In other words, these five tests give almost all the differential indication of the total twenty tests. The surprising feature is, however, the *smaller amount of overlapping of the groups*, shown by the fact, that the mean variations of the averages are only half as great as before in proportion to the differences between them. Where 25% of the feeble-minded showed as great a total irregularity as the average dementia praecox, only 10% show as great an irregularity on the differential group; there are only 2% of the feeble-minded with as great an irregularity as the average chronic alcoholic on this special group of tests. For such purposes, one fourth of the scale is more accurate than is the whole scale.

Further work will, of course, be needed before these five tests can be accepted as the best of the twenty for such a differential group. But that some such differential group is more satisfactory, both in principle and in practice, would seem clear. For a trial of the method, the differential group and norms given above are suggested. And as an arbitrary boundary of irregularity six points may be used; only ten per cent of the feeble-minded show an irregularity over this, while 52% of the psychotics show such an irregularity—37% of the dementia praecox and 70% of the chronic alcoholics.

The question as to the probable significance of irregularity, as thus found, remains briefly to be discussed. It is usually assumed that irregularity is an indication of deterioration. The greater irregularity of the chronic alcoholics as compared with the dementia praecox is of interest in this connection. The dementia praecox cases seen at the Psychopathic Hospital are for the most part in the beginnings of the disease, and have not deteriorated very appreciably. The disease is often very hard to differentiate in its early stages, and during the customary brief stay at the Hospital; some thus diagnosed turn out to be after all not deteriorating psychoses. The chronic alcoholics, on the other hand, appear at the Hospital only after their condition has gone from bad to worse as the result of years of dissipation. The diagnosis "chronic alcoholism" as used there means primarily alcoholic deterioration (active psychoses more in-

cidental to the use of alcohol, such as delirium tremens, or alcoholic hallucinosis, were not included in the above tables). If irregularity were a measure of deterioration, then, a greater irregularity would be expected from the chronic alcoholics. That the data show them to have an irregularity some 14% greater than the dementia praecox would suggest that irregularity was, in fact, an indication of a deteriorated condition.

Experience with a large variety of patients does not altogether bear out this conclusion. A psychoneurotic may not infrequently give an irregular examination, so may a manic depressive patient; in neither instance is there deterioration in the accepted meaning of that word. The examination may sometimes be uneven because of physical illness, because merely of headache resulting from "lumbar puncture." Irregularity suggests deterioration; but the indication is not so definite as is often supposed.

However, marked irregularity seems always to mean interference of some sort with an examination satisfactory for a mental rating. This interference is usually, with psychotic patients, due to deterioration; it may be the result of a more temporary negativism, or retardation, or absorption in a delusional system. It may be the result of physical disease or disability, or of such an ill-proportioned showing as comes from malingering. Whatever the cause irregularity always means that there has been some influence at work which prevents the examination giving a mental age or coefficient which is a satisfactory indication of the patient's normal mental level.

Interpreted in this way, as a measure of the reliability of the examination for the determination of a "mental age," "irregularity" has a wider meaning than has usually been assigned it. A question often arises as to whether an alcoholic is primarily a moron addicted to alcohol or a normal individual who has deteriorated. If the psychological examination is "irregular" a low rating may be considered not adequate to the patient's original capacity, and an argument from the poor showing to the conclusion that the patient was originally feeble-minded not justifiable. *The irregularity may be due to poor co-operation due perhaps in turn to an active psychosis, to physical illness, to malingering (an attempt, say, to feign mental defect to escape sentence for some criminal offence), to deterioration; as a test for the presence of any such factors making the mental age rating invalid irregularity is surely of more value than if it were sensitive only to the last.* Suppose, then, such a chronic alcoholic or dementia



praecox patient gives a low and an even examination—that is, an examination typical in its make-up of the average feeble-minded case, but unusual to obtain from a psychotic. The inference is that there is little deterioration, or *other interference* to prevent a showing normal to the individual, and that the patient is a feeble-minded alcoholic, or a primary ament who is beginning to develop a psychosis. Such a conclusion may make a substantial difference in the prognosis, treatment and disposition of the case.

This interpretation of irregularity may seem somewhat aside from the results which have just been presented. But the writers felt, on the basis of an unusually varied experience with the tests, that some qualification of the natural conclusion from these results as to the relation of irregularity to deterioration was necessary. In fact, these results are of interest and possible value in two quite different connections. In the first place, the norms for the feeble-minded show what irregularity is to be expected in cases of primary amentia. Twenty-one points total irregularity, and six points with the special group of tests on which irregularity most appears, have been suggested as boundaries; an irregularity beyond these limits should lead to a suspicion that the examination was measuring something beside general intelligence.<sup>1</sup> There need be no suspicion of mental disease. Illiteracy may have interfered unduly with an adequate showing, or the child may be frightened at being brought to the examiner's office and unable to do himself justice, or the patient may have been coached on some of the tests. Any such factors influencing the examination are likely to give evidence of their presence in an increased irregularity. The irregularity thus serves as a measure of the reliability of the examination in serving its primary purpose—in giving a measure of general intelligence in normal (and feeble-minded) individuals.

For the purpose which has just been described the data on the feeble-minded are, the writer believes, sufficient for some immediate practical use. For dealing with the further problem, as to how far a given irregularity (supposing the other causes which have just been mentioned have been eliminated) approaches that to be expected from a deteriorated patient, the figures can hardly be thought of as more than indicating the

<sup>1</sup>Such an irregularity should lead first of all to the use of a large number of special supplementary tests, such as the Healy puzzles, for example. Some of these special tests should be tried with every case; whatever the problem, they are sure to throw some additional light on it. In work with psychotic patients they give more distinctive results than do the tests of the scale.

probable results of further research giving a total amount of data more adequate to the problem. But as a suggestion of a way in which such results might be made most useful for clinical work, the data have been rehandled in the following simple fashion, so that a given number of points irregularity can be read directly as a percentage probability that the case belongs in the feeble-minded group or in the group of the deteriorating psychoses. The results with dementia praecox and with chronic alcoholics have been combined into one "deterioration" group, and the per cent of the total group appearing at each number of points irregularity found; so 6% show an irregularity of seventeen points. Similar percentages were worked out for the feeble-minded cases; 14% of these gave an irregularity of seventeen points. The total per cent of the two groups showing this irregularity is 14 plus 6 or 20; 14 is 76% of 20. There is thus a 70% probability that a case showing an irregularity of seventeen points is feeble-minded rather than of the deteriorating group. The figures for total irregularity (with the averages slightly smoothed) run as follows:

No. of points

irregularity 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

%prob. that

feeble-minded	100	95	90	84	70	62	50	42	38	27	24	20	18	12	00	00
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No psychotic cases show an irregularity below fourteen points, therefore the probability is that 100% of cases with irregularities of thirteen are feeble-minded. And no cases of primary amentia show an irregularity over twenty-six points; so the probability is 00, that cases over this are primary aments, or 100% that they are psychotic.

The probabilities for the special group of five differential tests are still more interesting.

No. of points

irregularity	2	3	4	5	6	7	8	9	10	11	12	13	14
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%prob. that

feeble-minded	100	100	95	80	50	27	12	4	00	00	00	00	00
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The overlapping is much less, and the curve much smoother.<sup>1</sup>

Some such method as this would appear to be the ideal in making most useful data of this sort for differential work. In a single figure is given the indication of the results on a given patient *with their reliability*,—and this not merely at a single

<sup>1</sup>Where the indication is not definite,—as with five, six, or seven points,—and in fact, with all cases, such supplementary tests as have already been referred to should be used. These appear to give much more distinctive results than the tests of the scale on such cases. (see reference, note 1.)

limiting irregularity, but at every irregularity. Simple tables such as these, for different differential purposes (writers are now working on a similar group of tests, with similar norms, for the feeble-minded as compared with normal individuals) should add immensely to the value of the tests, as used in clinical work.

#### SUMMARY

The paper may be very briefly summarized. It is a study of the value of irregularity in a psychological examination as an indication of deterioration. The Point Scale was used, and a new method of figuring irregularity, more adaptable to practical use than any hitherto employed. The conclusions are based on data from 158 feeble-minded, 67 dementia praecox, and 55 chronic alcoholic cases, grading from eight through twelve years mental age. The conclusions are as follows:

1. The feeble-minded show an average irregularity of 17 points, dementia praecox 20 points, and chronic alcoholics 22 points irregularity. Within these limits (8-12) the irregularity is practically constant from one mental age to another. But the mean variation at each mental age is large, making irregularity on the total scale of only rough value for differential purposes.

2. Analysis of the results shows certain tests (10, 16, 17, 18, 19) most differential. A diagnostic "unit" composed of these five tests gives results much more distinctive of the psychotic as against the feeble-minded group. Such a special grouping of tests within the scale is suggested as a new and highly valuable means of obtaining differential results in dealing with any differential problem.

3. Further consideration showed that irregularity was not, invariably, evidence of deterioration. It might be caused by poor cooperation, by illiteracy, by malingering, by psychotic disturbance of a temporary nature, or, finally by deterioration. However, it is always evidence of *some* interference with the examination as a measure of the individual's normal mental level.

4. On the basis of these considerations, it is urged that for practical work irregularity be considered as a measure of the freedom of the examination from such factors as those mentioned above—that is, a measure of reliability of the examination for the determination of mental level. If a patient shows an irregularity greater than that given by feeble-minded individuals, the examination cannot be used as evidence of primary amentia. For the differentiation of subnormality from deterioration, the special differential group is suggested.



The foregoing paper, and an article to follow dealing with the reliability of the Point Scale for use with adults, were written during the summer of 1917 and summarized at the Pittsburgh meetings of the American Psychological Association in December of that year, but as the result of circumstances connected with the war were delayed in publication. The paper dealing with deterioration is a further report of work carried out under the direction of Prof. R. M. Yerkes at the Boston Psychopathic Hospital during the year 1916-17 and outlined in the June 1917 number of this Journal. The second paper was written at the suggestion of Dr. E. E. Southard, as of interest in connection with the proposed use of the tests in the army. The writers wish to express their obligations to both Professor Yerkes and Dr. Southard for the problems and for many valuable suggestions in the course of the work.

Some of the statements made in the two papers the writers would be inclined, now, to modify, but the essential conclusions they see no reason for changing. In particular they feel the concept of "irregularity" to be of great practical and theoretical importance. In fact, it is not easy to understand why some such measure was not demanded much earlier in the history of testing. Statistically, it would appear of the first importance that some statement of the grouping or dispersion of the scores resulting from a series of measures, as well as the average or sum of those measures, should be obtained. The writers are now working over results from a group scale of intelligence in analogous fashion.

*Indiana University,*

*February, 1919.*

## REVIEWS

HUMAN NATURE AND ITS REMAKING. By William Ernest Hocking, Ph. D., Cambridge. Yale University Press, 1918. Pp. 428.

This interesting book, which obviously embodies the results of a very liberal amount of thought and work, has succeeded in challenging the careful attention of the reviewer and in amply justifying a studious reading and re-reading. To any careful reader the author's meaning becomes clear, and indeed one lays down the book with a sense of admiration of the author's power of definition and of aphoristic statement, as well as of his discriminative analysis.

The purpose of the work is well presented in the preface. It represents a fresh attempt to scrutinize fairly the eager, often painfully intense, efforts that men everywhere are making, to adjust themselves to their environment and their environment to themselves. What is it that sets the standard for these efforts? How great is the possibility of change? Of what does the driving force consist that—in social matters—forever impels some men toward the life of convention and others toward the rebellious rejection of all authority? Is the whole outlook for change to be considered as dependent on eugenics only,—*i. e.* on improvement in stock? Or can men induce alteration in themselves, through will and training and all the forces that civilization stands for?

These questions have been variously answered. By one group of students it is thought that men are moved by what the author defines as a real longing to break loose from the tyranny of custom and tradition, a longing classifiable as "moral realism," a term with which the author designates a craving for pragmatic goals, in philosophy and life. One strong root of this movement is the desire to return to "nature" and to see how "nature's plan" works out. But how shall "nature" and "natural" be conceived of? That is a fundamental question.

Among the various movements of this class, of which the author speaks, the psychoanalytic movement of Freud comes in for a consideration which is sympathetic up to a certain point. Its contribution and aim, if limited are real.

"We find our initial common ground with this realism by accepting, for the purposes of the argument, the picture of original human nature as a group of 'instincts.'"

But the mere fact that every human being finds himself impelled by "certain primary (instinctive) hungers," or possessed of this or that

ability definable as an "instinct," does not explain why he finds satisfaction in the spiritual goals of effort and desire, which, in one form or another, are so congenial to the human mind. It is only *our interpretation* of instincts that justifies the assigning of such ultimate meanings to them, for, of themselves, they give no warrant of a capacity to provide for men's higher powers.

"Instinct by itself has no claims, because it has no head; it cannot so much as say what it wants except through an interpreter,"

whereas, in fact, to discover what one wants is quite as much of a problem for intelligence as how to get it. The great problems of human life are, in short, not solved by this partial explanation. The attempt to reduce all life's phenomena to the terms of conflicts between blindly working forces, whether they be called reflexes, tropisms, or instincts, is unsatisfactory, unless, indeed, we stretch the definition of "instinct" so as to make it cover all that the best men in their best moments, may desire. In fact, however, when these highly sublimated desires arrive, they find themselves at once as much at home and as indispensable as do the primary instincts themselves. It would seem, then, that the next essential step is to "interpret" instincts and to find out what it is that human beings "want," and why. "Society" stands ready to assume the responsibility of giving this interpretation, and the varied pressures exerted by society are worthy of very careful study.

But to accept the decision of society as infallible would deprive individualism of its responsibilities and rights,—and this would be intolerable. The individual must come finally to his own, but this can happen satisfactorily only through a genuine appeal to the religious consciousness, which, in fact, as an ultimate source of relatively unimpeachable motive, furnishes the essence of whatever is now solid in our democracies.

"An age of competition, like our own, unless it is something else than competitive, cannot be a free age, however democratic in structure, because its chief concerns are lateral. To the competitive elements in our own social order we owe much:—an impersonal estimate of worth in terms of efficiency which we shall not surrender, a taste and technique for severe self-measurement, incredible finesse in the discrimination and mounting of individual talents. But we owe to it also an over-development of the invidious comparative eye, a trend of attention fascinated by the powers, perquisites,



and opinions of the immediate neighbors. The eternal standard is obscured: hence we do nothing well; we lack sincerity and simplicity; we are suspicious, disunited, flabby; we do not find ourselves; we are not free. Unless we can recover a working hold on some kind of religious innervation, our democracy will shortly contain little that is worthy to survive."

But although the final appeal is to that element in consciousness which is definable as "religious," this does not mean that men should cut loose from their scientific or logical intelligence. We ought to "recognize no antagonism between the work of thought and the voice of religious intuition . . . . and it is one of the permanent achievements of our time" to have learned to appreciate this fact. We must still and forever reflect and interpret, and utilize the fruits of every sort of study.

In accordance with this scheme, it will be seen that this book attempts,—as every earnest piece of work devoted to the issues here in question should,—to study human life in accordance with the historical, or genetic, method, on the one hand, and on the other hand in obedience to an absolutely unquenchable impulse to get beyond the limits and conclusions established by this method. The author faces boldly the difficulties of the situation, and after defining and discussing the tenets of Christianity as best representative of the religious principle, he admits that the problems which we would like solved can be absolutely solved, not by saying that our religious dreams and ideals are "*probably*" true, but only by striving to solve the question whether, *as a matter of fact* the world does correspond to these dreams and these ideals.

In the final chapter he expresses a doubt as to "whether philosophy can affirm the existence of this '*fact*.'" If it is affirmed it must be on the basis of something "personally experienced or 'revealed.'"

In order to decide the question, "What sort of world is it that we live in?" one must then inquire, "What sort of world have we been living in? What have been the metaphysical foundations, real or supposed real, for those qualities, those instinct shapes which characterize our present human type?"

Illusion and disillusionment present themselves at every turn, as one analyzes more deeply these difficult problems of the striving will and striving imagination. What one longs for is a demonstration that that which is sought has been found. Men "need reality to climb on; they need a reality they *can* climb on." The mystical quality which seems to be in men as an integral part of their equipment claims the

ability to recognize this reality, but the critic in man, who is likewise there by the same inherent right, is compelled to go on demanding proof.

“Absence of belief that the world as a whole has an active individual concern for the creatures it has produced need neither destroy happiness nor the morality of compassion . . . Instinct has its satisfactions in an uninterpreted or partly interpreted condition: it will reach some accommodation to the world that is. Nothing would necessarily be destroyed or lost from the good life which some at least of the human race now know and many hope for,—nothing except the higher reaches of curiosity and sympathy, and the wisdom of developing them.”

In the last sentences of this chapter, of which that just quoted is one, the writer seems to reach a conclusion which to many persons would be felt as unsatisfying. But, in fact, it is evident that the writer himself believes in pushing forward, in obedience to one's instructed intuition, to the farthest point, and recognizes that the world has hitherto shown itself more hospitable to lives conducted in accordance with this principle than those conducted in any other way. It is thus, in other words, that the “total will” finds its best satisfaction.

These broad final conclusions, here very inadequately sketched, are not arrived at, it should be understood, until after the other attempts to find satisfying goals have been thoroughly and analytically discussed. The author begins by inquiring what “human nature” is made up of, that men alone, among the animals, strive constantly to re-make, and then describes the various means by which this process of re-making can take place. Thus, in Part II, the natural, or instinctive, man is studied. Then in Part III, the intervention of conscience is described; in Part IV, that of experience; in Part V, the modelling due to society is discussed; in Part VI, that of art and religion; in Part VII, the influence and essential meaning of Christianity. Finally comes the chapter called “The Last Fact” to which I already have referred.

So many are the details in all this discussion that it would be impossible here to do them justice. One of the most important chapters, perhaps, is that on the instincts, in the treatment of which the author differs from most writers in recognizing—justly, as I think—that what he calls the “central” or “necessary” instincts,—those which are related to the order usually spoken of as the “higher functions” of life,—are just as primary as those automatic tendencies which we call in-

instincts in a narrower sense. The "will," which is closely related to the instincts, is described as a "stable policy" which is gradually adopted by the intelligence, and the term "will to power," in spite of its unfortunate connotations is given a meaning which, instead of implying a desire for personal and selfish acquisition, makes it equally well adapted to serve as a social function in the best sense. One wills power in order to protect, as well as in order to overcome in competition.

In a similar way, "pugnacity" emerges from its "dialectic" as an indispensable quality of great value.

In the course of the book various attempts are made to do justice to the views of other observers, amongst whom is Freud. To set forth to what extent justice has been done to the important movement for which Freud stands would require more space than this review has the right to claim. It is hardly to be supposed that those who have devoted their lives to the almost exclusive study of the "unconscious" influences that sway men's thoughts and acts, could be fully satisfied with any statement that was not based upon a study equally comprehensive with their own, since it is only by feeling one's way into the heart of this mystery through the difficult medium of practical experience, that complete sympathy with the point of view there given can be reached. The handicaps to moral re-making as given, for example, by Dr. J. T. MacCurdy in his essay on the Psychology of War<sup>1</sup>, deserve careful discussion, though I do not regard them as conclusive. On the other hand, it is unquestionably true that the Freudian point of view, which, after all, studies only the "under world" of human nature, cannot claim to be comprehensive in its furnishing of data for an adequate view of men as they exist, especially from the stand-point of the "total will." For a long time to come it will probably remain true that the two classes of students who investigate, respectively, the man of conscious striving, on the one hand, and the man who is subjected to unconscious cravings, on the other hand, will be somewhat at cross-purposes with one another. More and more, however, the discrepancies between the conclusions which they reach will be eliminated, and it will undoubtedly be found that the final assignment of place and importance will rest with persons who, like the author of this book, see human life most clearly as actively tending toward spiritual goals and "total meanings," which are inadequately defined as "sublimation."

JAMES J. PUTNAM, M. D.

<sup>1</sup>The Psychology of War. B J. T. MacCurdy, M. D. William Heinemann, 1917. Pp. 68



PSYCHICAL PHENOMENA AND THE WAR. By Hereward Carrington, Ph. D., Author of "Death: Its Causes and Phenomena," "The Problems of Psychical Research," "The Coming Science," "The Physical Phenomena of Spiritualism," "Death Deferred," etc. New York: Dodd, Mead & Company, 1918. Pp. 363. \$2.00 net.

This volume is divided into two parts: Part I, dealing with normal phenomena, and Part II, dealing with so-called supernormal phenomena.

Part I discusses "German Methods of Warfare," with the psychology of the doctrine of frightfulness, and then offers two chapters on the "Psychology of the Soldier," during mobilization, in the cantonments, in the trenches, during the attack, pain, shell-shock, dreams, sleep and fatigue. This is a very good summary of the soldier's behavior at different periods and under varying conditions.

Part II, dealing with so-called supernormal phenomena, comprises eight chapters, which take up, in order, the following topics: "Psychical Phenomena, Science and the War;" "Psychic Phenomena Amidst the Warring Nations;" "Prophecies and Premonitions;" "Apparitions and Dreams of Soldiers;" "Clairvoyant Descriptions of Death; Death Described by 'Spirits';" "Our Soldiers Yet Live;" "Communications From Soldiers who have 'Died';" and "The Spiritual Revival Awakened by the War."

Those who believe in spiritism or even mental telepathy may agree with the writer wholly or partly. Those who do not or cannot believe in these possibilities or perhaps regard belief in them as itself a psychological state requiring study and analysis, will not be convinced by the evidence accumulated and here offered.

The layman who has not made up his mind whether to believe or disbelieve, may be convinced of the truth of the author's contentions by the reading of the second part of this book, especially if he comes to the reading of it with the "will-to-believe." The chapter heading "Our Dead Soldiers Yet Live," and the speaking of soldiers who have died, but with quotations about the word died, thus: "Died," tell the tale.

Many of us wish it were true. But we must face reality. And so we find ourselves compelled to disbelieve.

And so we shall, in all friendliness and kindness, agree to disagree.

MEYER SOLOMON.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. By Various Writers. Third edition, completely revised and rewritten, edited by Thomas Lathrop Stedman, A. M., M. D. New York: William Wood and Company, 1913 to 1917. Eight imperial octavo vols., 29x23

c. m. Illustrated by over 6,000 text-engravings and over 60 full-page lithographic plates in color and tint. Pp. 7273 of type as small as is expedient. Price, \$56.00.

The third edition of this adequate medical encyclopedia, ably edited by the editor-in-chief of the *Medical Record*, New York, is especially note-worthy as a war-means toward financial economy and conservation. For the actual working use of the really busy practitioner this one elaborate treatise on Medicine represents monographs costing at least four times as much,—and often, be it noted, providing far more exactly what the hurried reader seeks: competent opinion expressed in the desirable conciseness. The editor claims that “no such number of prominent writers and teachers has ever before been associated together in the preparation of a work especially designed for the Medical Profession;” this statement careful acquaintance tends to support. In number these authors are several hundred, and none of them a foreigner.

The articles on psychoanalysis, psychasthenia, and the psychoneuroses are by Smith Ely Jelliffe, as also is that on the classification of mental diseases. Wm. A. White prepared a useful paper on the examination and diagnosis of mental diseases; Henry J. Berkley on their etiology; Adolf Meyer on their pathology; Henry R. Stedman on their prognosis; Charles P. Bancroft a finely illustrated treatise on their symptomatology; and T. H. Kellogg the discussion of the treatment of mental cases. Dementia precox is described by H. R. Stedman both wisely and with sufficient completeness—in fact, it is one of the best accounts of this concept known to me. Jelliffe treats of the phobias also, and of hysteria. Judson Herrick has done the elaborate and up-to-date articles on the brain and on the cord, (Edw. W. Taylor, M. Allen Starr, and J. J. Walsh discuss some of the diseases of the cord), but Leon Solis-Cohen writes the account of “the sympathetic” and its disorders.

There is much medical biography in this “Reference Handbook,” hundreds of names, one might judge, being discussed, enlivened with many valuable portraits. There are many psychological articles.

The war-phases of Medicine are amply treated of in the later volumes especially, prepared after the beginning of the Hunnish megalomaniac’s attempt to crush the world,—the apotheosis of madness that is also crime.

In every way this work is worthy of its editor, its publishers, and of its American authors, and should be on the book-shelves of every physician who would keep up with these in-some-respects rapid times.

GEORGE V. N. DEARBORN.

*Sargent Normal School*

## SOCIETY NOTES

### *Golden Jubilee*

#### *Victory Celebration Meeting*

The Fiftieth annual meeting of the American Medical Editors' Association will be held at the Marlborough-Blenheim Hotel, Atlantic City, on Monday and Tuesday, June 9 and 10, and will take the form of a semi-centennial celebration and a Victory Meeting, emphasizing the part which this Association and its members have taken in the World's war.

The enthusiasm manifested upon the part of the President, Ex-Presidents and Officers of this Association is an assurance of its successful outcome.

A most attractive program is now being prepared and every physician, even remotely interested in medical journalism, will find it to his advantage to attend.



# THE JOURNAL OF ABNORMAL PSYCHOLOGY

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## ORIGINAL ARTICLES

### WHAT IS THE PROBLEM OF STUTTERING?

BY MARGARET GRAY BLANTON AND <sup>1</sup>CAPTAIN SMILEY  
BLANTON, B. S., M. D.

**O**F what material is speech built? What processes unite to turn many thousands of unrelated movements into the co-ordinated thing which is called speech? With what is man endowed that enables him to accomplish this seemingly impossible adaptation of both the voluntary and the semivoluntary mechanisms?

Although man inherits, apparently, a steadily improving impulse for speech, no definite speech faculty is discoverable at birth. "Nor only" says Baldwin<sup>2</sup>, "do we fail to find (in infancy) the series of centers into which the organic basis of speech has been divided, but even those which have not taken up their function, either alone or together, which they perform when speech is actually realized. In other words the primary object of each of the various centers involved is not speech, but some other and simpler function; and speech arises from a union of these separate functions."

What is true of the brain centers of speech is true of the rest of the physical mechanism of speech. Each of the muscles, bones and integuments involved in speech finds its primary function in some act more fundamental from a biological viewpoint. Only the vocal cords remain primarily for speech and only then if inarticulate cries are so considered. The diaphragm is used for life breathing, the tongue for taste, the teeth for

<sup>1</sup>Neuro-Psychiatric Unit, Medical Corps, U. S. Army.

<sup>2</sup>Baldwin, James M., "*Mental Development*."

grinding, and the nasal cavity, sinuses, etc, have their primary function far removed. The various brain centers which are utilized later for the production of speech find their primary function as muscular-motor, auditori-motor, visual-motor, etc.

Speech, therefore, may not be considered as a unit of activity but a sum total of motor activity divided into arbitrary sound units and presented with a definite relation which we have come to accept and understand as having a certain symbolic meaning.

But there has been incorporated into these different words and sentences something more than sound. There is rhythm, for instance, without which it would be a mere jumble of unintelligibility, and there is inflection, which includes pitch, essential to the full understanding of the sentence.

Speech may be said to be an adaptive process. But what fails in the speech of the stutterer? What disharmony, what asynthesis exists? Let us consider it as a symptom of an illness of the adaptive processes rather than a disease entity.

There may be a rough grouping of stuttering under two heads: normal and pathological. But as would be expected these types overlap and are not constant.

*Normal* stuttering is present in most people at some time. It may be seen when the emotions heighten the glandular activities and the motor output outruns the mental need. We say then 'speech comes faster than thought.' Sometimes the reverse of this may be true where fright, fear of betrayal, fear of criticism, slows up the processes of thinking but the rate of motor output remains normal. In either case this lack of balance is called stuttering.

The *Pathological* stutter presents a different picture although the physical characteristics of the symptom itself are not dissimilar. There is first, a break in the rhythm of speech, the immediate cause of which is a repetition or a prolongation or a withholding of sound. Second, a change in the amount of inflection, either above or below the normal amount. These symptoms lack constancy. No one stutters on every sound at all times. Many do not stutter on any selected group of sounds either vowel or consonant, and many who do stutter on certain selected sounds do not do so at every repetition of the sound.

The clinical picture which presents itself to the mind is a repetition or withholding or prolonging of the sound of the first word stressed; followed by jerky, monotonous, broken phrases

or sentences; in turn followed by words, phrases, or sentences spoken smoothly but either too rapidly or too slowly and either under or over inflected. This may vary greatly. Sometimes periods of months, weeks, days, may pass in which no stuttering appears, and then some period of mental or physical stress or lack of tone renews it. Contrary to the generally accepted statement it does sometimes come even when the patient is alone, as even a brief study under the proper conditions will demonstrate.

The *Frequency* of its occurrence is computed from questionnaires and surveys to be about .9 of one percent of the school population. If to this were added the relatively much higher percentage among the mentally deficient the average would in all probability be one percent.

*Sex.* It predominates in the male in proportion of three to one. Contrary to a recent statement made in the literature, it does exist in the female.

*Hygienic surroundings* are of greatest importance. Poor nutritional conditions, poor sleeping arrangements, late hours, over stimulation, lack of opportunity for muscular development, and above all poor sex-hygiene, all predispose to it.

*The Age of onset* can be given with less accuracy as stuttering is a condition which, like the other disturbances of adaptation, often goes unnoticed until it becomes inconvenient to the social group. It is most often noticed first upon some conspicuous occasion such as the first day of school, when some platform recitation is undertaken or after some fall or accident. Occasionally it is first noticed by strangers or others than the immediate members of the family with whom the child has been associated. The three main periods of onset are, (1) the beginning of speech, (2) when the adaptations are strained by the beginnings of school life and the conditions imposed by the present school routine and, (3) at the first pronounced period of sexual stress from nine to fourteen.

Up to the time of the present war the records show a maximum of a half dozen who have become stutterers after the age of eighteen. A high percentage of war neurosis cases show this particular motor-disturbance of speech.

Another element obtrudes itself in the observation of the age of onset, and that is the general indifference of the family to the condition of stuttering. This attitude is unfortunately implanted in the mind of the too willing parent by the ignorant



physician, who fosters the belief that the child will "outgrow it." How this superstition can have persisted in the face of the overwhelming evidence against it in the presence of a large number of mature stutterers will ever remain one of the mysteries of the working of the medical mind.

There is an unfortunate belief that all children stutter. All children do pass through a stage when speech, from being a mere motor output becomes a vehicle for the presentation of ideas, and the process of translation slows up and makes halting the speech processes. This is a period of great danger to the development of good speech, as here an illness which delays the normal progress may block and slow up the motor output or in other ways interrupt the synthesis which must exist between the idea and its motor expression.

There is also the lisping of early childhood and the "individual speech" encouraged by lack of adaptation to the conditions imposed on children by the uncomfortable facts of life, and by the ignorance and thoughtlessness of parents. These things may confuse the diagnosis until the gradually growing conspicuousness, as the age passes in which these other conditions are permissible, brings the stuttering child in contrast to his social background.

How often stuttering is related to lisping has not been demonstrated, but our experience leads us to believe that it is much nearer than the literature suggests. Not only the type now called "neurotic lisping" but also those heretofore classed as mechanical and negligent. For it is undoubtedly true that in the vast majority of mechanical conditions, with the exception perhaps of protracted lower jaw, full intelligence unhandicapped by mal-adaptation will find an overcompensation for the condition that will answer the purpose of clear speech.

Injudicious and even well adapted treatment for lisping may bring on the condition of stuttering in cases where the predisposition is especially strong, by calling attention to the mechanical processes of speech, which processes should rightly be automatic.

Stuttering is even encouraged in young children by ignorant adults who repeat what the child has said with an air of approval and amusement and thus foster the possibility of its repetition; or by over anxiety and correction which added to the condition already existing gives rise to speech-fear.

*Padromal Symptoms.* Stuttering has, to the trained ob-

server a rather definite incipient stage. Certain conditions which precede stuttering bear not so much a relationship of cause and effect as of that of a padrome. The lisp, the oral inactivity which includes the large group erroneously called tongue-tie, huskiness of the voice, slurring, over inflected, monotonous, over rapid or too slow speech all point to a general impairment or lack of development of the adaptive faculties which are utilized by speech.

*Speech and motor pressure* is nearly always present with stuttering. This is probably due to two factors, (1) to some glandular disorder which would seem to be indicated by the fact that the pressure remains even in the presence of the tremendously advanced motor output, (2) in some cases to the repression of speech imposed in order to appear normal. Tics of the face, legs, and arms, as well as the diaphragm are often present. Tics of the diaphragm occasionally seen where there are so marked disturbances of speech are also a premonitory symptom of stuttering.

*The Temperamental Picture* presented by the frank stutterer is rather constant. Mental states which may be considered indicative are overboldness, a compensation for timidity; extreme competitiveness and a tendency to become inaccessible. There is often an emotional irritability and instability, alternating with mild depression in which these patients sometimes suicide. There are also ideas of reference and a certain morbid belligerence.

*Sex-Marriage.* Dr. William Healy (The Individual Delinquent) found the stutterer prone to homo-sexuality. This may be partly due to the exclusion of the opposite sex, forced on the stutterer by his disorder, but also, surely, by the natural lack of adaptation and egocentric trend.

These patients are usually over attached to the parent of the opposite sex, a fact noted by writers on the subject who antedated a study of the Freudian theory in this country (Potter "Speech and its Defects" 1882). It is not unusual to see these patients sleeping with the parent of the opposite sex until the advanced age of fourteen or fifteen and sometimes later. These conditions are often hard to remedy, due not so much to the insistence of the patient as of the parent who rationalizes her desire in every imaginable way to have close physical contact with her child. Often the child is withdrawn from treatment even when success is apparently crowning effort, as though the

symptom of stuttering had an emotional value to the parent herself who thus wishes to preserve the tie by an exclusion of the outside world.

In the parent there is likely to be a great deal of lack of adaptability in the sex relationship.

As might be expected the families of these patients present a picture very nearly as constant. They show, when not the stutter, the markedly neurotic symptomatology which the patients themselves exhibit, a fact often overlooked by those who contend that the neurotic condition is the end result rather than a contributing cause of stuttering.

The families of these patients often abound in strange religious and esoteric beliefs, "Christian Science", Pacivism and many other types of withdrawal from reality not being exceptional, and extreme religiosity as well as sex-perversions can sometimes be postulated. Often where these individualistic outlets are absent especial talents in the arts may be found. Many seem to come of families of more than the ordinary musicianship.

A constant factor in the family history of the stutterer is the presence of speech and vocal troubles. This includes not only stuttering but also such defects as extremely rapid, weak, slurring, highpitched speech and voice. One case-record exemplifies this very nicely. The patient, a stutterer is a boy of ten. The mother has very rapid and almost unintelligible speech, as has also one sister. Two other sisters have the same defect in a less degree, one has a chronically hoarse voice and one speaks so slowly as to appear quite ludicrous. All lisped unusually late and more than normally and one brother, whose speech is now otherwise very good, still has trouble with the formation of the letter "s" although there is no mal-formation or occlusion. A paternal grandfather stuttered. This family are all exceptionally intelligent, vivacious and interesting. Temperamentally they are unstable and show lack of the ability to adapt themselves to the marriage relation. Two members show some of the marked symptoms of epilepsy. Nearly all have well developed musical talent.

There seems in all this family, as in the patient himself, to be some weakness in some of the fields onto which speech may be said to be grafted, or a weakness in the co-ordinational centers themselves. An additional fact of interest is that three of the children did not talk until the third year and all were somewhat



slow in developing speech and had a limited vocabulary during development.

The *Prognosis* for spontaneous recovery can not be made with any degree of accuracy. A large number of cases do get well without and sometimes in spite of assistance and treatment. In what percentage this occurs it is even of doubtful value to guess because the statistics of the existence of stuttering have been so incomplete, and the case records are so very limited in number and scope.

"Cures are obtained by various methods, varying as in the case of the other illnesses of adaptation from suggestion to 'nerve medicine.'" The various schemes of punishment and distraction sometimes relieve this symptom but too much emphasis can not be put on the fact that the relief of any symptom until the underlying cause has been removed is not only misleading but also sometimes definitely harmful. In dealing with it it is best to follow the method of nature in the spontaneous recoveries, that is, the various compensatory and re-educational measures.

*Summary.* To summarize, then, there is or may be postulated some hereditary or acquired weakness in the field of emotional adaptation plus some hereditary or acquired weakness of the adaptive functions of speech, presumably in the kinesthetic, auditory or visual centers. More probably in the first two than in the third.

A discussion of the way in which a weakness of the adaptive functions of speech may be acquired throws some light on the disease-symptom and its avoidance.

It is obvious that any process of the human organism which is acquired out of its accustomed time or sequence is a process acquired at a less suitable time and is therefore rarely so well attained. This is true of speech and any condition or accident which interferes with its acquisition or perfection at the proper time may be said to predispose to a weak speech mechanism. Thus the interruption or delay of the acquisition of walking and the other fundamental muscle development may retard the laying down of the "impulse paths" along which the accessory muscle impulses are presumed to travel. An interference with the use of the left hand in normally left handed children may have the same effect. Illness or shock at the period of transition from speech as a meaningless motor output into speech as an expression of ideas may cause a similar retardation.

*Treatment.* What, then is the rational treatment for the relief of this condition?

The methods suitable for the care of the child and the adult differ. For the former it consists mainly in adapting the home-school conditions to his needs and training for a fuller development of the mechanism which is as yet in a period of active growth and therefore more capable of modification. Also a modified analysis of the psychic mechanism suited to the intelligence and adaptability of the child and education along the lines which will modify the secondary conditions likely to arise from prolonged stuttering. This should follow, where possible, study and, where necessary, reorganization of the physical and glandular conditions of the child.

It is with the adult that we wish to concern ourselves here.

The first and most vital thing is the care of a trained neuro-psychiatrist, who should, in addition to the most exacting physical examination, make a thorough study of the behavior and mental life of the individual, his adaptations in the field of sex and his general social relations and output. The psychologist can be of value only if a neuro-psychiatrist is not available and then only in so far as he may have made himself conversant not only with the general principles of mental and emotional analysis but also of the activities of the glands and the modern methods of determining the illnesses of the internal secretions and the many organic as well as the more serious mental disorders of which these patients are capable.

The neuro-psychiatrist must have at his command an assistant who parallels in the scope of his or her ability the Aides now established in the first-grade institutions for the mentally ill. The field, however, in which these workers must be trained differs as the main symptom of the stutterer differs from the main symptom of the other mental and nervous patients. They are most easily recruited from the ranks of oral teachers for the deaf as these teachers are equipped to give aid in such allied conditions as lisping, mal-position of the active articulatory organs, etc. They have learned also, in their dealing with the deaf, the value of patience and a winning personality. Psychologists, and teachers of physical education are also already partially equipped.

The assistant must be trained to study and analyze the co-ordinational activities of the patient and in the re-education of them especially utilize the crafts which stimulate the coarse

co-ordinations. These consist chiefly of wood-work, simple weaving, clay work, copper work, gardening, dyeing, and such others as may be available and which may carry on their usefulness after the period of re-education is past. Crafts requiring the use of the finer movements, such as hand sewing, raffia work, embroidery, etc. are contra-indicated in most cases.

While it is desirable and essential that the patient have some interest other than his own emotional evolution especially during the period of analysis and study the primary reason for the use of the crafts is the direct education of the fundamental muscles and gradually through them, of the accessory.

Dr. Smythe-Johnson has pointed out in his Yale Laboratory tests, that proficiency in one field of co-ordinated activities leads to greater skill in all. A fact which is continually demonstrated in the ease with which a skilled craftsman in one field "transfers" his ability almost intact to another field.

The second field of value is rhythmic dancing and patting. This may be done both to music and to count. Drill, forcing an instant muscular obedience to spoken orders, is also of great value. These, for the training of the voluntary as well as for the involuntary co-ordinations.

(3) Swimming, is especially adapted to the re-education of the diaphragm and other breathing muscles, and for poise and rhythm.

(4) The re-education of the kinesthetic and the auditor-motor imagery by reading aloud, saying certain phrases after the Aide, quick response to questions, etc. It can not be too strongly emphasized that there should not be any direct letter and syllable training. This will at once appeal to the reason when it is realized that there is no fault with the articulating organs in the condition of stuttering, rather, owing to the condition, there is already an over emphasis and consciousness of these organs. Plays and games which include speech which can be devised in such a way that they will hold the interest of the adult and at the same time give him confidence in his ability to speak freely may be used, but this end can best be accomplished by conversation, undirected.

The Aides must also by their attitude assist in the emotional re-education of the patient. They should have as much information with regard to the patient's special troubles as can be given consistently and should be of the type to respect the tenets of medical ethics. They should also be well informed of the



inadvisability of their undertaking to attempt any phase of the emotional re-education except when directed to do so by the physician in charge, otherwise confusion results.

*History taking.* A most important phase of the study and treatment of any disorder, the taking of a complete history, has an added value here, as the reliable literature on this subject is practically negligible and the student must therefore depend on his case histories for special study. It is well to have a very full history blank, built on the order of those in use in the better institutions for the treatment of mental illnesses. They should cover every field of endeavor which may seem to have the slightest relation. The study of this trouble may be said to have just begun and leads which may at present seem rather far afield may presently prove of value.

"Systems of cure," and "methods of treatment" must be laid aside, and each case studied and prescribed for separately. It would be better if we could abolish the attitude that this or that person is "a stutterer" but rather that "this man stutters or that man stutters." It is as individual as is the person on whom it has fixed itself.

There is needed badly some change in the present public attitude toward this problem, which has remained one of the fields of endeavor in which anyone with the inclination might undertake to work; more knowledge as to just what this symptom indicates and, indeed, that it is a symptom rather than a disease entity and may in time be found to have its basis in a number of different organic or functional disturbances.

A more serious consideration of it at the hands of the medical profession would be a great step in remedying this condition which is not without its reproach to them, in that, owing to the indifference of the men correctly trained to deal with this disorder, the victims of this most distressing form of mental suffering have been given over almost bodily to quacks and charlatans, or, what is almost as bad, to kindly disposed but ignorant people who see in it mainly a means of livelihood.

It becomes more and more evident to the careful student that the amount of disorder in the motor speech field and the severity of the neurosis do not always bear a direct ratio to one another. Obviously a neurosis would not produce as severe a disorder in a person of relatively strong speech mechanisms as in one where the hereditary or acquired conditions of the mechanism were not so well adapted to withstand strain.

To illustrate, the incipient stutterer may have a condition bordering on a neurosis and a stutterer "cured" so far as this symptom is concerned may still suffer from a depression which will lead him to commit suicide, or ideas of reference or of persecution which may lead him to make false accusation and sometimes even commit graver crimes, whereas a person with a decided fault in the speech may adapt himself very nicely to the condition, sublimate his activities and live very nearly a normal life.

Of course stuttering, which brings so many difficult problems of adjustment must be relieved if possible and the weak mechanism strengthened in order that the vicious circle which has been established may be broken. But no treatment which has this, only, as its end can be of value. The theory of an "accidental" symptom has been discarded long ago and in its place has come the knowledge that the only time in which it is justifiable to remove a symptom is after the underlying cause of the trouble has been reached and remedied or proven hopeless.

# ARE THE PRESENT PSYCHOLOGICAL SCALES RELIABLE FOR THE EXAMINATION OF ADULTS?

AN ANALYTICAL COMPARISON OF EXAMINATIONS FOR  
CHILDREN AND FOR ADULTS

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**I**N a previous article,<sup>1</sup> the subject of irregularity on a psychological scale as a means of distinguishing deteriorated from feeble-minded individuals was discussed. In that paper a new method of figuring "irregularity" on the "Point Scale" was explained and norms for irregularity for groups of feeble-minded, dementia praecox and chronic alcoholic cases presented. The value of each test in the scale for differentiating deterioration from primary amentia was then worked out, the five tests most differential combined into a special differential group of tests and norms for this group also presented. The results appeared of considerable value for practical purposes.<sup>2</sup>

The present paper briefly reports work of largely similar nature, only done on normal children, feeble-minded children and feeble-minded adults. The study of these three groups of cases gives rise to two distinct, but related, questions. Do the feeble-minded show a greater irregularity—therefore a different make-up of examination—than the normal person? If so, what tests and mental processes are most affected?<sup>3</sup> Second: are the present standard intelligence tests applicable for work on adults? Does mere maturity change the make-up of an examination given by a mentally defective person? If so, what tests and mental processes are most affected? This last comparison of adults

<sup>1</sup>A New Method for Determining the Reliability of a Psychological Examination. S. L. Pressey, Boston Psychopathic Hospital and Luella Cole, Boston Psychopathic Hospital.

<sup>2</sup>In that paper reference was made to the difficulty of evaluating such findings, due to the fact that so little is known as to the results of psychological examination of adults. All well known psychological scales are based on work with school children and are planned primarily for use with children. But in practice these scales are given quite as frequently to adolescents and adults. It is assumed that a given mental age has essentially the same significance whether obtained from an adult or a child. As will appear from the following data, such an assumption is not wholly justifiable.

<sup>3</sup>This first question goes back in the last analysis to the old problem as to whether primary amentia is merely arrested development or involves mental abnormalities as well.



with children should measure what the comparative effects of maturity are and should determine whether or not tests, obtained from school children are valid for the mental measurement of adults. The results which have been obtained on these questions seem of decided interest, both theoretically and practically.

In this work the Point Scale was used throughout. The method of figuring irregularity may be described as follows. The basis was a table<sup>4</sup> giving the average score in points of the normal child at each mental age and for each test. Thus, the average score of eleven year old children on test one is 3.0; on test two, 3.8; on test three, 2.8; on test four 3.7, etc. If a given child, testing at eleven years, scores 3, 4, 5, and 5 on these first four tests, he shows variations from the average, or irregularities, of 0.0, 0.2, 2.2 and 1.3; and the sum of all these variations on all the twenty tests will be the total irregularity. In the case just mentioned the irregularity was 14.2. Such a statement of irregularity is simple and comprehensive and is often, as shown in the paper already referred to, of no small significance. It should be worked out, the writers believe, in all cases and recorded along with the mental age and coefficient as part of the findings.

This paper is a study of 275 cases. In obtaining data, results from normal children were most difficult to accumulate from the material available but were essential as a basis for all the further work. The examinations used were made at the Boston Psychopathic Hospital. Normal children are not usually brought here, but children whose fathers have developed neurosyphilis are frequently brought into the Out-Patient Department for a Wasserman test, accompanied by the routine physical and psychological examinations. If the Wasserman reaction is negative, the child tests at normal on the scale, and has a good school history, he may be considered as normal. Cases are also frequently brought in to the Out-Patient Department for minor delinquencies, who turn out to be average enough children who chanced to be caught in escapades more or less common to all children, but are haled into the Out-Patient Department by over-zealous social workers. Some children thus brought in are younger brothers or sisters of some child who has been in a reform school but who have themselves shown no abnormalities. In other instances there is no suspicion of mental defect, and the

<sup>4</sup>Table 30, p. 123 of "A Point Scale for Measuring Mental Ability" Yerkes R. M., Bridges J. W. and Hardwick R. S. Warwick and York 1915.

psychological examination is given in connection with the adoption of a child or some other such matter. In selecting these cases of normal children, only those grading within a year of age, above or below, giving a good school history and having the diagnosis of "no mental or nervous disease," were used. No individuals brought in for emotional or nervous instability, none with any physical disease, none from homes where no English was spoken, were taken even though their examinations were up to age. Fifty cases fulfilling these requirements and grading at the mental ages of eight to twelve inclusive, were found in the Out-Patient Department. The number of examinations is, of course, too small, but the group as thus selected was distinctly homogeneous and the averages obtained would appear to be of fair reliability.

Two groups of feeble-minded cases were considered. The distribution by mental age was fairly even for both groups. 110 of the cases were individuals under twenty years of age; 115 were over twenty, chronologically:<sup>5</sup> all were feeble-minded. Two thirds of the primary aments were cases tested at the Waverley School for the Feeble-minded the rest were persons so diagnosed at the Boston Psychopathic Hospital. These last cases were also carefully selected, none showing nervous or mental disorder in addition to their primary amentia being included, or any whose scoring would be influenced by an inadequate knowledge of English.

The total irregularities of all these 275 cases were figured first by the method described above. The results are shown on Table I.

<sup>5</sup>It may seem odd that *feeble-minded adults* were studied. But the crux of the problem is right here. Positive action is taken upon the results of the psychological examination only when the case is judged feeble-minded; otherwise the findings of the psychological tests are, for purposes of disposition, negative. And it is the adult who has what is usually called a child's mind to whom these children's tests should be most applicable. That the scales are only roughly satisfactory with such case would imply that they were even less satisfactory in work with normal or deteriorated individuals of adult years. A direct study of the examinations of normal adults was impossible as no data was available and the findings, supposing such data to be at hand, would have been less crucial. First and foremost, the tests are used for diagnosing feeble-mindedness and it is in proportion to their reliability for that work that they should be primarily judged.

TABLE I

Mental Age	TOTAL		IRREGULARITY (IN POINTS)			
	Normal Children (50 cases)		Feeble-Minded under twenty (110 cases)		Feeble-minded over twenty (115 cases)	
	Av. m. v.	No.	Av. m. v.	No.	Av. m. v.	No.
8	14.6	+1.8 (11)	15.6	+1.4 (24)	17.7	+1.5 (24)
9	16.8	+1.4 (10)	16.5	+1.6 (30)	18.2	+1.9 (29)
10	15.6	+2.5 (6)	16.8	+1.5 (20)	17.8	+1.9 (16)
11	15.7	+2.2 (10)	15.7	+1.5 (20)	17.8	+1.9 (25)
12	14.4	+1.5 (13)	15.0	+2.0 (16)	17.6	+1.5 (21)
	15.6	+1.9 (50)	15.9	+1.6 (110)	17.8	+1.7 (115)

The figures in parenthesis give the number of cases at each mental age. The average mean variation is the average of the mean variations at the different mental ages, not the mean variation of the averages.

It will be seen, in the first place, that the average irregularities for each of the three groups are surprisingly constant at the different mental ages. This is especially true of the two feeble-minded groups, so that it seems warranted to take sixteen as a general average for the feeble-minded under twenty and eighteen for those over twenty. The figures for the normal children are less constant from one mental age to another, but this is probably due to the small number of cases. A norm of sixteen for the mental ages of eight to twelve would seem to be indicated.

In the second place, it would appear that irregularity on the Point Scale is not indicative of mental defect. Feeble-minded cases under twenty, average only .3 more irregularity than the normal children. This is of no small interest. It is frequently stated that a greater irregularity is indicative of mental defect. On the Point Scale, at least, this is not true, if the feeble-minded cases are young. The greater irregularity found by previous writers may be largely due to the fact that they used the Binet Scale with its heterogeneous assemblage of tests. The smaller differential irregularity on the Point Scale might then be considered evidence that the Point Scale was more nearly a measure of intelligence, being freer of tests of information or other elements not closely associated with general intelligence by itself.

The definitely greater irregularity of the adult cases should be noted, however. It suggests that the results of other workers may be due in part to an inclusion in their averages for the primary aments, of cases too far removed in chronological age



from normal children to make the groups strictly comparable. The definite difference in irregularity between child and adult feeble-minded persons calls at once for an analysis of the examinations in these two groups to discover what is causing the difference<sup>6</sup>

Such an analysis was made by finding the average score of each group of the feeble-minded on each test and comparing the results with the average performance, on each test, of the school children on whom the mental age norms for the scale are based. The figures are given as per cents of the score of the normal children of the same mental age achieved by each of the mentally defective groups. Table II gives the data which for greater clearness has also been graphed (Plate I). In this

TABLE II

Test	1	2	3	4	5	6	7	8	9	10
Cases over 20	101	105	114	93	100	66	117	85	85	103
Cases under 20	102	103	115	89	100	65	115	100	100	94
Test	11	12	13	14	15	16	17	18	19	20
Cases over 20	102	101	79	74	134	56	95	119	143	101
Cases under 20	122	117	97	66	111	105	89	65	85	93

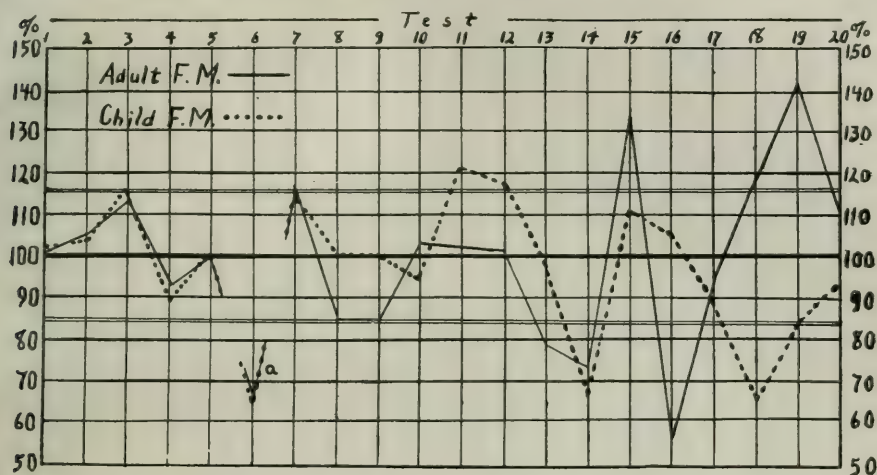
First line: tests of the Point Scale, in order. Second and third lines; percent, of score made on each test by normal children, shown by feeble-minded individuals (*a*) under 20, and (*b*) over 20.

graph the heavy mid-line, at 100 per cent, represents the performance of the normal child and the dotted and plain lines the variations from that norm, in per cent, of the two groups of feeble-minded cases. These last lines give what might be called a "profile" of mental defect and of maturity as compared with normality. Or to put it another way, they give a graphic representation of irregularity. On the graph, double lines have been drawn at the points marking fifteen per cent above and below

The norms for the adult feeble-minded should supersede those given in the previous paper; as mentioned in that paper the norms were at fault in including cases of all chronological ages in one group. This was then necessary as sufficient data for treating the two groups, children and adults, separately had not been accumulated. Comparison will show that these new norms, for adults only, are more satisfactory for purposes of differentiating primary amentia from deterioration. The norms for the differential group now run 3.6, 5.0, 5.5, 5.5, and 5.4; the averages are more constant from one mental age to another and the scatter of individual cases around the average is less. This differential group, with the norms here given seems likely to prove of decided practical interest.

normal. Variations beyond these limits may surely be considered significant.

"Profile" of the Irregularity shown by (a) Adolescent and (b) Adult Feeble-minded Cases on the Point Scale.



Heavy line (100%) indicates score of normal children on each test. Graph shows variations from this, in percents. Double lines mark 15% variations, above and below the normal line.

(a) This variation due to a change on test six, made after the norms were established. The variation is thus of no significance.

If test six is excluded (see note, Graph I) the only significant variations occur on tests 11, 12, 13, 14, 15, 16, 18, 19. The younger group of the feeble-minded show only four such irregularities. The showing is definitely better on test 11, (resisting suggestion) and test 12 (drawing square and diamond). It is poorer on test 14 (writing a sentence containing Boston, money and river) and test 18 (reconstructing dissected sentences). These results may be taken as further evidence that the feeble-minded do relatively well with tests requiring merely sensori-motor adjustments, but very poorly with work involving ideation. The poor showing on these last mentioned tests may, however, be correlated more directly with the retardation in, and early elimination from, school, symptomatic of primary amentia.<sup>7</sup>

<sup>7</sup>An attempt was made to develop a special group of tests for distinguishing primary amentia (using tests 11, 12, 14 and 18) similar to the differential group for distinguishing deterioration, described in a previous article. See note 1. But the result was not sufficiently satisfactory to merit report here.

The adults show an irregularity of a definitely different make-up. They do poorly on test 13 (free association) test 14, (writing the sentence containing Boston, money and river) and on test 16 (drawing two geometrical figures from memory). They do surprisingly well on tests 15 (comprehension of practical questions) and 19 (definition of abstract terms). A natural interpretation is that these adult defectives are especially characterized by a paucity of ideation, test 13 being free association, lack of ingenuity (test 14) and a poor capacity for learning (test 16). And the experience, which comes with greater age, has brought the capacity for understanding practical questions of a simple sort (test 15) and knowledge of abstract ideas of a social significance, (test 19), somewhat greater than has the average child of the same "mental age."<sup>8</sup>

Whether such interpretations be accepted or not, the fact remains that adolescent, and particularly adult feeble-minded persons give examinations on the psychological scale which are essentially different from the examinations given by normal children by which the results are judged.

The bearing of these results upon the general problem of mental measurements of adults is obvious. It had been customary, in work with adults, to use one of the standard psychological scales. The total score, or with the Binet scales the total number of passes, was then found and the result read as a "mental age." If the mental age was ten, the individual was supposed to have the intelligence of a ten-year old child. The graph above makes it clear that such an assumption is true only in a very rough way. The examination which has given the adult this mental age of ten is strikingly different, in important features from the typical child's examination, which gave 65 points, or 48 passes on the Stanford scales, its significance as an indication of a ten year mentality. Such an interpretation, in dealing with feeble-minded children or adolescents is not altogether sound theoretically. In dealing with adults, the connotation which this form of statement gives, is a distinctly false one,—the impression is altogether wrong.

<sup>8</sup>A comparison of these "profiles" with a similar graph for dementia praecox and chronic alcoholic patients is of decided interest. Feeble-minded, chronic alcoholic and dementia praecox patients have, each their own profiles which mark off the groups with some definiteness from every other group. See Pressey S. L. Distinctive Features in the Psychological Examination of Dementia Praecox and Chronic Alcoholic Patients. *Journal of Abnormal Psychology*, June 1917.



A much better statement for the findings of a psychological examination is the coefficient of intelligence or the index quotient. The adult giving a mental age of ten, has a coefficient of .74 on the Point Scale or of .57 on the Stanford. That is, he obtains 74% or 57% of the score that he should earn if he were of average intelligence. His score happens to be the same as that of the ten year old child, but the two examinations are not the same, and with the findings stated as a coefficient, there is no pretension that they are.

The irregularities exhibited on the psychological scale mean more than that the commonly used statement for the findings on the scale is unsatisfactory, however. They mean that these scales are inadequate for work with adult individuals. A change in mental make-up with maturity is doubtless one cause, but there are other factors. The failure of the subnormal adult to reproduce from memory the Binet figures is not due, primarily, to his mental defect. The problem presented is so utterly foreign to his experience that he does not know what to make of it, how to "take hold" of it. It is wholly different from the varieties of problem by which, in his environment, his intelligence is tested and his failure here has very little significance. A school child finds such a task of memory not unnatural. For an adult the test is next to valueless.<sup>9</sup>

The writers feel that other tests of the scale have, for dealing with adults, the same inapplicability. Any one experienced in clinical work must have felt acutely, at times, the inadequacy and the irrelevancy for such purposes of much of this material. A day laborer, fairly intelligent in his reaction to his own limited environment, is bewildered and irritated by many of the problems set him. When he is asked what he would do if he had broken something belonging to another, (part of the Binet "comprehension of questions" test) or requested to define justice, the problem seems to him not unnatural as a test of his judgment and moral sense. And, as the graph shows, he does fairly well on these questions. But when asked to give disconnected words for three minutes, to draw designs from memory or to make up a sentence containing Boston, money and river, he does poorly. The reason is not so much lack of intelligence as unfamiliarity and awkwardness with the type of problem.

But, to whatever causes we assign these irregularities; the

<sup>9</sup>That is, as a test of intelligence. In working with cases of mental disease it gives results of great interest. See notes 1 and 8.

conclusion is obvious. The standard intelligence scales have been developed primarily for use with school children and are based upon work with them. When used upon adults, even when the adults are low mentally, the results must be considered much less exact and the significance of the total score with regard to the relative development of the various abilities largely different. The measurement of the intelligence of adults is a problem altogether different from the measurement of the mentality of children. We need special methods and, to a large extent, special tests for this problem.

The standard scales have been used in work with adults because they made a contribution to the study of a case not obtainable elsewhere. If used with discrimination and judgment they are of decided value in dealing with such cases. They will continue to be of service in this work. But in using them for these purposes, it must be constantly remembered that they are being used in a way for which they were not primarily intended and in a type of work for which they are only roughly applicable. A group of tests originally developed for use with adults should give results of much greater definiteness and value. In general, adults may be thought of as grading somewhat too low on the present psychological scales because of the unsatisfactoriness of many of the tests for such work.

### SUMMARY

The paper may be briefly summarized. It reports the study of the psychological examinations given by 50 normal children, 110 feeble-minded children, and 115 adults of feeble-minded grade, all grading on the scale between the ages of eight and twelve. The major purpose of the paper was to determine the applicability of the present psychological scales to work with adult individuals. In connection with this a minor study was made;—a comparison of normal and feeble-minded children to obtain some evidence as to the distinctive features of the defective mentality. The conclusions reached were as follows:

1. Individuals over twenty show a definitely greater irregularity on a psychological scale than do normal or feeble-minded children. Feeble-minded children are not distinguished from normal children by greater irregularity.

2. The feeble-minded show an examination of a make-up different from that given by normal children. In general, the

mentally defective show a better sensori-motor ability than normal children of the same mental age, but a smaller number of ideas and a poorer ability for their re-combination and use in a new situation.

3. Adult individuals again give a result distinctively different. The strikingly different make-up of the examination given by the adult individual is used as an argument, (*a*) for the use of the "intelligence quotient" or "coefficient of intelligence" as a form of expression for the results of a psychological examination and (*b*) for the development of methods and tests especially adapted for use with adults.



## PSYCHOLOGICAL ANALYSIS AND RE-EDUCATION WITH CASE STUDIES

MARGARET J. HAMILTON

**I**N a former article<sup>1</sup> discussing the principles underlying my work, as these principles were demonstrated in the psychological clinic of the Southern California Association of Applied Psychology, the position was taken that the control of the emotional life is fundamental to securing adequate and healthy functioning of both the physiological and the intellectual processes. Emotional repression, conflict, waste, and starvation are asserted to be the primary causal conditions of a very much wider range of specific pathological disabilities, both physical and mental, than has heretofore been recognized. By the methods of psychological analysis and re-education used, these emotional conditions can be discovered and effectively dealt with, so that the pathological symptoms cease and the individual returns to normal conditions of physical and mental health.

It was further held that the presence of specific emotional biases and inhibitions is a very large factor in the production of intellectual mediocrity and failure, in mis-direction of well-trained logical processes into destructive and self-contradictory programs of conduct, and in the failure of moral ideals to function in controlling the adjustment process. Emotional conditions, whether conscious or unconscious, may serve to inhibit the proper growth and effective use of intelligence, or may deflect its activities into undesirable channels. The discovery and removal of these emotional inhibitions and biases is thus essential to the best success of educational procedure on both its intellectual and moral sides.

Indeed, on the side of the re-educative procedure, the moral reconstruction of the individual is often the chief task of the analyst. It should be noted that I use the term "moral" in its widest and deepest sense, meaning thereby that healthful unity of the competing instincts and impulses, that adjustment of the individual to his social environment, that harmony of his interests with one another, that robust and straightforward honest dealing with

<sup>1</sup>F. E. Owen, *The Psychological Clinic of the Southern California Association of Applied Psychology*, Jour. Abn. Psych., October, 1917.

the facts of both the internal and external life, which make possible the resolution of the harmful conflicts and repressions, and free the mind for its most healthful and efficient functioning intellectually.

Furthermore, it should be noted that the term "*psychological analysis*" is used instead of "psychoanalysis." The latter term has come through use to designate the methods, technique, and theories peculiar to the Freudian school and its various ramifications. Since no use is made of the Freudian technique, nor of the specifically Freudian concepts, but since the mental factors or elements which operate to determine the individual's reactions and contribute to his maladjustments are brought to light by careful and detailed analysis of both the conscious and the unconscious mental life, I have called this kind of work "*psychological analysis*" to avoid any possible confusion with the technique and doctrines of the Freudian school. Furthermore, while psychological analysis lends itself to the discovery of the mental factors involved in the production of pathological symptoms of both mind and body, the term covers a much wider range of operations. By psychological analysis we uncover the motivation, ideational and emotional, which is present to produce reactions that have no pathological symptoms accompanying them or resulting from them, but which may be interfering with the most successful adjustment of the individual in his reactions to his particular environment, and which are therefore causing him to fail to meet his individual problems upon the plane of efficiency which should be normal to his native capacity. Hence, "*psychological analysis*" is an analysis of conduct with a view to discovering the mental elements involved in producing that conduct. In such an analysis, not only must the ideational and emotional life most directly concerned be brought to light, but there must be uncovered the deeper-lying often unconsciously functioning, attitudes and trends, the more distant currents of feeling and systems of ideas which are the back-lying causes of those forms of thought and feeling that are more overtly in consciousness, or are nearest in time to the conduct that is being analyzed.

Furthermore, analysis is made of those factors in the mental life that are productive of the most successful and satisfactory adjustments, that are responsible for the freest and most constructive functioning of the intellectual and moral life of the individual, and that tend to promote the best health, physical and mental.

The person who is being dealt with is shown, as rapidly as he is willing and able to face his own mental life, the ideas, feelings, and general attitudes of mind that are interfering with his on-going, and a program of thought and action to correct these is mapped out for him to follow in his daily problems of adjustment. This program of thought, feeling, and action, is based upon the results of the analysis of the individual case, and upon the results of the knowledge, gained through analysis, of the mental factors that have been found to be most successful in bringing to pass that unity of mind, and that healthful reaction to environment, that are necessary to the best on-going of the individual. This process of re-education goes hand in hand, step by step, with the process of analysis, the progress being no greater than the individual is able to make, for, as I have said, only as much analysis is done as he is able and willing at that time to face, and such a program for meeting and dealing with what is in his own mental life and for facing his daily problems is provided him as he is at that time able to undertake. In all this work the individual may be said to build a new character through the conscious knowledge of the factors which were his former undoing and the conscious endeavor from day to day to change his ways of thinking and feeling through sincere and earnest efforts to follow the program that is outlined for him. In this he is successful in so far as the inhibitions that stood in the way of acquiring these new mental habits are removed, and in so far as he puts up no resistance to the acceptance and practicing of the new way of living. And as he makes effort from day to day, he acquires confidence and courage together with command of himself in proportion to his growth in knowledge and experience.

The process by which the causes of the maladjustments are corrected is thus, in a very deep and significant sense, an *educative* process. People come to the analyst to be *taught*: to learn why they are as they are, why they have reacted to life as they have, what it is in them that has brought them to their failure or to their pathological condition, and how they may so reconstruct their mental lives at the very sources of motivation that they may come to react differently so as to correct the causes and escape from their maladjustments. This sort of learning must be discriminated from the superficial, outward, objective acquirement of mere intellectual information. It is the sort of learning that involves such a depth and reality of understanding as brings to pass the building-in of different motives, the constant practical



acceptance into the warp and woof of mental structure of the new program of thought, the new attitudes of mind, both ideational and emotional. The knowledge and understanding that the individual gains must be dynamic, not static. It is therefore, proper, to speak of the individual who comes to seek help through psychological analysis and re-education as a *student*, since this is the attitude that he must and does take, if there is to be accomplished for him any lasting and genuine benefit.

In making the analysis, there must always be concrete contact with the student's daily adjustments where he is meeting his strains and tensions and suffering his defeats. This makes possible the furnishing of a program of procedure that will tend to relieve the repressions and supply satisfactory outlets so that the emotional adjustments may be made. It is in the reactions to his daily experiences that the individual reveals what the ideas and attitudes and emotional trends and repressions are that are the sources of his difficulties, and as these come to light, analysis is also made of the past experiences, the repressed, buried, or forgotten memories and processes, that may be functioning to produce his present maladjustments. By studying his reactions both to memory material and to his daily affairs, both as these reactions are now taking place and as they have taken place in the past, it is possible to make clear to him the emotional attitudes and the ideas out of which his reactions come. The student, thus enabled to understand himself, is better able to co-operate with the analyst in the re-educative process; for in re-education it is necessary to build into the mind of the student new ways of thinking and feeling in the place of those that have brought about the difficulties from which he may be suffering. In order that he may be willing and ready to accept and to put into practice new ways of thinking and feeling, he must be able to see the necessity for the change, and his understanding comes about through his being able to see clearly the relationship between his present mental and physical symptoms, his failures in adjustment and the life of ideas and feeling that causes them. He is thus put into conscious control of his own mental life, and is given an opportunity to follow entirely different programs of thought and action. He literally "changes his mind", but he does so with the full knowledge of its necessity, and is willing to do it because he sees what the "old mind" has brought him, and what the "new mind" will bring him if he will but work sincerely to make the necessary modifications.

The following sketches of the analysis and re-education of two persons who exhibited epileptic symptoms, and of one who had developed serious amnesia, will contribute to the further understanding of the way in which the emotional life not only brings to pass pathological conditions, but also interferes with the most efficient functioning of the intellectual processes. From a careful study of *Case 1* it will be seen that correction came about primarily through the re-education of the moral life, as here was located the under-lying cause of her difficulties.

Of necessity, only the barest outlines of the work done on these cases can be given, for the mass of detailed analysis, and the hours of conversation needed in order to carry on the work of re-education, would fill volumes. Moreover, this material would have full meaning only to the one actually engaged at the time in meeting the reactions of the students in both thought and feeling, as the work was done and the intricate details dealt with. The attempt has been made, therefore, to condense the many hours of detailed and painstaking work so as to give a perspective of the general trend, and an insight into the principles involved.

*Case 1.* This student is a young woman of twenty-three, a college graduate. When she came to our Psychological Clinic for consultation she was engaged in trying to do graduate work.

Up to the age of fourteen she seems to have lived a normal life in every way, being well, happy, vigorous, full of initiative, exuberant, expressive. No record can be found that she showed any tendency to nervous twitching or lack of muscular control. At about the age of fourteen she began to have muscular spasms in which she would completely lose consciousness for a few minutes, at most, and there was accompanying frothing at the mouth with stertorous breathing during the coma. These attacks increased in violence and in frequency as she grew older. There was also an increase in the languor and the depletion that would follow them. When she came to the clinic she had been having the attacks two or three times a week for some time, although there had been periods when she had not had them so frequently, the attacks coming only once or twice per month.

Her difficulty had always been diagnosed as epilepsy. On her first visit to the clinic she was asked what was the cause of her coming to us for help, and her response was: "I am filled with fear all the time—fear that I shall fall down and become unconscious in my classes or on the street." When asked if this had

ever happened, she replied that it had not, that the attacks so far had always occurred indoors and mostly at home, but that they were coming more often and that *she was afraid that she would get so that she would have no control at all*. This fear of losing all control will be seen to be one of the important factors in aggravating her symptoms and controlling her conduct, as it led to great repression. The girl showed great reluctance and diffidence about talking of her malady, needing much encouragement to speak of it at all. On her second visit to the clinic she was encouraged to go into a little detail concerning the attacks and what she had been doing to correct them. She said that the trouble had always been diagnosed as epilepsy, and that among other remedial measures prescribed, she had been put upon a strict diet a number of times. All these things, however, had produced no apparent effect. It was noted, at this point, that she showed great repression and rebellion over the diet program.

Her mother, on being called in and questioned, reported that the girl had been growing steadily more and more indifferent and lethargic. It had been natural in her childhood years for her to express herself freely, but she had seemed to become so sensitive to criticism that she had gradually ceased to talk freely. No matter what was said or done in matters that would concern her she would acquiesce without objection or comment or any normal expression of her own wishes and opinions. This seeming contentment or indifference was, it appeared in the analysis, entirely assumed, for inwardly she would be in a tumult of rebellion, resentment and disappointment, while holding herself outwardly calm.

The analysis revealed a two-fold source of this great repression. As the work progressed, it was noted that the girl was restraining herself from any normal sort of expression, and that at the same time she seemed eager to make a place for herself and have a position of leadership. When this great desire for initiative and self-expression was touched upon in the conversation, she immediately began to twitch and jerk and to lose all muscular control. At once the conversation was turned to other matters and some encouragement was offered to quiet her fear, which was always great when she found these attacks coming on. After she had gotten quieted again and all was running smoothly, the conversation was once more turned to the subject of her strong desire to take the initiative. At once she was thrown into a struggle to avert another spasm of uncontrol. Again by turning the subject



of conversation and quieting her fear the spasm was prevented from running its course into complete muscular uncontrol and unconsciousness. In the course of weeks of careful work in removing her fear and discharging other repressions, it was finally possible to deal bit by bit with this fundamental complex that surrounded her desire for self-expression and leadership. The barrier of inhibitions was slowly removed and at the same time a constructive program of both thought and action was mapped out for her to follow that gave her opportunity, little by little, to live again the life of initiative and self-expression that was natural to her, and that had been hers up until the age of about fourteen. Week by week, as the various repressions and emotional conflicts were resolved and an outlet for her intense desire to live a normal life of self-expression was provided, the attacks lessened in frequency and in violence, while their after-effects grew less and less depleting, so that often it was not possible to detect, within an hour or two after a spasm, that she had had any attack.

The beginning of her repression of initiative was in her fourteenth year and was brought on as follows: It seems that she was so full of initiative, so eager to take the lead in everything, and at the same time so capable and so overflowing with life and energy, that she was completely dominating her older sister, and without being consciously or rudely self-assertive, she was nevertheless having her own way about things where the sister was concerned. The girl was simply bubbling over with life and vitality, and developing so rapidly and vigorously that she was crowding the older sister to the wall. The mother reports that she feared that the older sister would not have a proper chance to develop, and she therefore felt that she should do something to check the eagerness of the younger girl to take the leadership in everything. She therefore took a vigorous hand in the proceedings, rebuked the younger girl severely for her forwardness and domination, and forbade that this sort of thing should continue, ordering her to stop trying to "run everything," but to give way to her sister and let her have a chance. From that moment the girl ceased all attempts to have her own way openly, dropping all her former vigor and spontaneous assumption of leadership, her eager and quick expression of her own wishes and opinions in matters where her sister was concerned, as though she had been stunned, as indeed, with her delicate and sensitive nature, she was. She had not been consciously forward, dominating, and aggressive, but simply thoughtless and exuberant in her spontaneous self-expression,

in which she was obtaining huge satisfaction. Because she was at the same time very sensitive, the rebuke turned her completely in upon herself, crushing this carefree spontaneity and shocking her into inaction. She was hurt and she could not right herself. So deep was the hurt that the girl seems to have no memory of the incident of the rebuke at all. She remembers well that as a young girl she was exuberant, vigorous, quick of tongue and pushing out to take leadership everywhere, but she has no memory at all of when the change from this began to take place.

In the work with her in analysis and re-education, she has shown this great sensitiveness, this quickness of response, not needing to be dealt with vigorously or sternly, but willing to be guided by the gentlest of methods, where others would have to be dealt with very firmly, or even with considerable forcefulness, to get them to follow directions. She did not lose her desire to lead, or her hunger for self-expression, with the mother's rebuke, but she seemed to be inhibited from showing any of her former initiative again in matters within the family. She let her sister have her way, to all outward appearances being contented and happy, and the mother congratulated herself that she had been so easily successful in putting a stop to what she had considered undesirable behavior, not realizing the actual harm she had done.

Inwardly, however, the girl was full of rebellion and disappointment, but she could not pass the barrier that had been set up. Instead of merely reducing her impetuous initiative, she ceased it altogether. It developed in the analysis that she was unconsciously taking the position that if she could not be allowed the expression and leadership that she craved, she would not try to be anything at all or make any sort of wish or desire known in any open way in opposition to what had been proposed. She inwardly "threw up her hands and quit," not consciously spiteful, but hopeless and confused, bruised and thwarted. Then the spasms, with their accompanying loss of consciousness, began to make their appearance, and a second source of abnormal repression was developed. She began to be greatly terrified lest she lose control in everything, since she found that she had no control over either her body or her mind when these attacks would come on. This sense of the loss of control so filled her with fear, humiliation, and loss of self-respect that she rapidly changed in all her relations from the exuberant, expressive girl she had been, always eager to offer an opinion, hasty of temper and quick of tongue, to one who

was reticent, indifferent (outwardly only), very quiet, apparently only a disinterested observer or on-looker. This was all done to protect herself. She felt that since she had lost control in one thing, she was in danger of losing control in everything. Therefore, in the effort to furnish proof to herself that she could exercise control, that she still had hold of herself in some respects at least, she refused to allow herself any sort of normal self expression. She was not, of course, conscious that this repression and restraint in every regard was increasing her malady. In fact, she thought that it was helping it, or at least was preventing it from spreading to everything else, and from becoming more frequent in occurrence than it otherwise would be were she not holding this constant check upon herself. She was confident that, so long as she could exercise control in something, she was at least that much to the good. The inhibitions against any sort of self-expression grew rapidly, and a psychosis was formed so that she became actually unable to assert herself in any normal fashion at all. Instead of really being in control of herself as she thought, she was in fact being controlled by the psychosis of fear, and by the psychosis which had been formed by the severe rebuke received when but a young girl, with their accompanying inhibiting complexes. Of her fear of loss of control she was quite conscious, but she did not know that it had come to dominate her in an abnormal manner. But of the psychosis formed by her mother's rebuke she was entirely unconscious, merely finding herself inhibited from self-expression in matters where her family adjustments were concerned. Thus both within and without her family she found herself constantly pushed into the background, unable to make headway or retain her own place against those who might be pushing ahead for recognition in her stead. The feeling of helplessness and the constant thwarting brought inner anger and great impatience, with an intense sense of utter defeat that were crushing her. She was constantly eager for self-expression, yet found herself inhibited and compelled to see others forging ahead of her and taking the lead in matters that she had been given charge of.

Any attempt heretofore to control her in the way of following some rigid regime for her health had been met by her with stubborn inner rebellion. She would make no objection openly, but there would come a look into her eyes of stubborn and dogged anger as of a caged thing. And though she said nothing, yet she would go ahead and eat and sleep and exercise in just the way she



pleased, irrespective of prescription. She felt this same anger and repressed rebellion over any attempt to control her, or to classify her in with any one else in any way, either in speech, or dress, or action, so strong was her desire to have her own way, to take the leadership, to have some self-expression. There was, thus, a pride, conceit, and selfishness present in her that had to be dealt with and changed before she could be brought to view her varied problems in any healthful fashion or make her adjustments in such a way as to gain expression without conflict. It should be noted that her pride, conceit, and selfishness were not in any sense abnormal in respect of being more abundant or more persistent than one finds in many a healthy normal girl. But because of her peculiar sensitiveness and her very natural and worthy desire for self-expression, these brought her great conflict and prevented her from making the necessary adjustments.

After several visits to the clinic, arrangements were made for her to come for private work. For over a month the progress was slow. The girl seemed to be in a state of semi-stupor, at times, so little interest did she show in what was being said. At other times she would seem to be quietly on guard, observing what took place as though curious what it was all about and what would be said next, but never offering to enter actively into matters herself. This apparent stupor and inability or refusal to express herself, or show any interest, grew out of her fear, as I have said, lest she should lose control should she allow herself any genuine and free expression of opinion, feeling, or desire. The result was that she did not seem, at first, to be even normally intelligent. However, as the weeks went on, and as the nature and causes of her malady were revealed to her, and some of the inhibitions and repressions had been somewhat lifted, she became more interested and finally gave all attention and support to carrying out the program laid down for her, even in all those matters where she had heretofore been most stubborn and rebellious.

The work of re-education had to be directed first to the task of lifting this burden of fear from her mind, and then she had to be taught how to take some steps toward the self-expression she had always repressed. While there were many inhibitions to be removed, and many related complexes to be "discharged", all of which helped to put the girl more and more into command of herself, the fear of these attacks lifted rapidly in proportion as she began to understand their source, and as she gained hope of coming into such control of herself that they need not continue.

This lifting of her fear freed her from the repressions which it had caused, and she found herself able to give expression where before she had been so greatly inhibited. At once, with the allaying of her fear, her attacks grew less frequent and less violent, and as the work of re-education progressed in the direction of teaching her how to come out of herself and find that expression which had been repressed from her fourteenth year, these attacks ceased. She was able to obtain constant proof from day to day that control lay, not in repression at every point, but in learning how to express herself without fear and without conflict with others, and how to take second place when that was the thoughtful and generous thing to do, without at the same time feeling crushed and thwarted. This daily experience in cause and effect, and this control, which was not a grim repression but a free and healthful expression, not only removed the burden of fear, but also so freed her intellectual processes that she has from the first lifting of the fear showed an intelligence of a rare quality, an intelligence of which there was no indication when work was first begun with her, so greatly had she been inhibited.

Hand in hand with the lifting of this fear, the work of re-education had to deal with the psychosis formed by her reaction to the rebuke administered by her mother as above recited. Because of this psychosis she was inhibited from making her adjustments at home. She was, as I said, docile, agreeable, assenting to whatever went on in her family life. To the eye of the layman, she had been contented, and if not happy, at least not openly unhappy, so that her acquiescence passed for listlessness and lack of interest rather than for what it really was. With the lifting of her fear lest she lose all control if she allowed herself any expression, she became willing to follow a simple program involving the exercise of some initiative and the expression of her wishes and opinions in matters that came up where her interests were involved. By degrees she came to be able to live a normal life, able to express herself freely and frankly, but without suffering from the opposition that normally one meets from others—able, in other words, to give and take and make her adjustments in a healthy, normal fashion.

Mention was made above of the fact that a large part of the work of the analyst is in the moral field, in the reconstruction of the moral life. In this case, a great deal of the work of re-education was entirely within the moral realm. It was her unconscious selfishness, thoughtless and exuberant as she was, that

brought on her first difficulty, for she was dominating her sister in a way that was good for neither her sister or herself. When she was rebuked, her pride and egoism were sorely wounded. In connection with her spasm, moreover, she suffered very great humiliation. In none of these characteristics of conceit or selfishness was she obtrusive or abnormal, but they prevented her from making her adjustments, and were a constant source of emotional repression and suffering. The work of re-education had thus constantly to deal with the moral life of this student, and only as she became less self-centered, and has developed a robust and healthy unselfishness in all her social relations, and at the same time has taken an entirely different attitude toward herself, has she found it possible to make her adjustments without stress and conflict. With these fundamental changes of attitude there have come back to her, from her every relationship, reactions that have been a constant encouragement for her to make effort to build the new character, and she has had constant proof of the relationship between the fundamental currents of her moral life and her suffering, both physical and mental. Without this fundamental change in her character, there would be no guarantee against a renewal of the repression and a return of the attacks. But with this bringing to pass of a healthful moral unity, there has been erected a bulwark against the return of her difficulties, just because she reacts to all her life situations with a healthy normality of thought and feeling that prevents the formation of the repressions.

She has had to be taught how to come forth, as it were, and meet life. But in order to do this, the inhibitions that had been formed had to be removed. The removal of the great fear of the spasms, and of the idea that she could only be sure of herself as she refrained from any sort of expression, made it possible for her begin to allow herself to move out from her old habits of thought and feeling and meet her environment in more normal fashion. There then had to be added the fundamental work upon her character, for her sensitive pride and her self-conceit were constant sources of inhibition as well as of repression. This work was all done by making analysis from lesson to lesson of the mental factors out of which her reaction to her daily affairs grew, so that she could see what was responsible for her inhibitions, her wrong moves, and hence for her repressions and hurts. Step by step with the analysis the more healthful ways of thinking and feeling were outlined to her, and a program for putting these better atti-



tudes of mind into action was devised, so that she would have constant and fruitful practice in making her adjustments. The spasms have ceased to recur, and she is showing fine intelligence and taking her place in her work with vigor and competency. She has come to understand herself, and hence to control herself, so that she is making her adjustments in thought, feeling, and action in a healthy normal fashion.

*Case 2.* This student was a young woman of twenty-five, a teacher in the public schools. She was sent to my office by her physician. When I went into the reception room where she had been directed to wait for me, I found her full of irritation because she felt ill-used over not having been given instant attention on coming in. At once upon introducing myself, she broke out in complaint about a table that was in the room, bluntly asking me why I kept such a plain ugly piece of furniture around. She was loud in speech, opinionated, critical, running on from one topic of conversation to another, beside herself with irritation. She showed this lack of control about everything, exploding, chattering, and fussing through the first two or three interviews, truculent, full of hostility and resistance, quick to express biting criticism in regard to any matter that might come up.

At the first interview I asked her why she had come to me and what her difficulty was. She replied blusteringly: "Well! Can't you see? My doctor told me you handled all his most difficult cases, and I should expect you to be able to know what ails me without my telling you anything."

However, I secured from her the information (later corroborated) that she had suffered for many years with what had always been diagnosed as epileptic seizures, sometimes as "scintillating epilepsy"; that these seizures had always occurred at home until recently, when she had been taken with one of them in her school room, and the children had called in the principal. Now, since the attacks were no longer confined to her home, she feared lest the school authorities would discover the nature of her malady and she would lose her position. As her attacks were increasing in severity and frequency, and she found herself feeling ever more helpless and irritable, she feared she would finally be sent away to a sanatorium, as, indeed, had been strongly advised.

She insisted also that she was losing her memory. In fact, she declared that she was becoming incapable and inefficient in every way. This attitude toward herself, it will be seen, grew

partly out of her intense desire to forget the causes of her difficulties. I at once asked her a few questions that brought out the details of some outings she had enjoyed three or four years since, and when I pointed out that her memory seemed to be all right in this regard she thought it very strange, as she insisted that she did not feel as though she were able to remember anything at all. She had been positive for some time that she had been losing all her ability in this direction. Finding herself thus mistaken, she gave me her attention and seemed to feel that perhaps something might be done to help her. She ceased to cavil or complain at me and instead gave me all the attention she could and tried sincerely to co-operate with me so far as she was able. For several visits she was too nervous and excited for me to enter into any analytical work with her; but as I gained her confidence, she came to talk freely, and then it was that I was able to uncover the fundamental cause of her trouble.

The underlying basis of her attacks proved to be what I may call a psychosis of rebellion. There had been developed in her an exceeding unwillingness to be controlled or directed by anyone—a resentful rebelliousness against following any program arranged for her by any one else. This psychosis of rebelliousness against any control or direction was showing itself particularly in her relations to her parents, with whom she was still living. She insisted that she hated to live at home, that this made her very unhappy, and that her parents were always trying to get her to do something that she did not want to do. She went into a tirade about how nothing made her so furious as to be compelled or even urged to do something that she did not want to do. There were times, she said, when she thoroughly hated her mother, and then times when it was the father whom she hated. When asked what particular thing they did that made her hate them, she replied: "I don't know. Sometimes when I just look at them it reminds me of times when they made me do things I did not want to do, and I just get angry at the thought." When I remarked that this was a pity, that there were times when children had to be governed and be made obedient if they were ever going to amount to anything, and that while, as a child, not understanding this, she might be angry over being controlled, yet now that she was teaching school and could see the importance and reasonableness of governing children, she surely should not feel that way—she burst forth with: "Well! It was the way they did it. Away back when I was only fourteen years old there was some sort of enter-

tainment going on at school, and I made up my mind that I would have nothing to do with it, and that I would not take any part in it. And they just made me. From that time I have felt so rebellious and ugly and hateful and resentful! The very thought of it makes me feel as though I could do something terrible right now!" Whereupon she turned very white and seemed to be ill with nausea. I asked her what was the matter and she said, "I am turning very sick. Whenever I think of that it always makes me so very ill."

I then tried to go carefully with her into some of the details of the school program incident, and when I came to asking what part she had in it, she stumbled and stammered and finally said that she could not talk about it at all. "I never was so angry in my life," said she. (It later developed that *she became ill with intense nausea and fainted, at the time, in her struggle over being urged against her will to take part in the program, and so was excused from participation. This seems to have been the beginning of her so-called epileptic symptoms*).

I suggested that if she would tell me all about it, I might be able to help her not to feel so bitterly, as the memory seemed to cause her so much suffering and to be spoiling her life. "But, she replied, "I don't think of this very often. I do not know when I have remembered it before. I never do remember it, and I would not have thought of it now, only that something you said seemed to bring it all back to me." I pointed out to her that she had nevertheless, taken this same attitude of rebellion which she was exhibiting now, more or less ever since that time, whenever anything came up which she did not wish to do. This she admitted, and seemed so exhausted and weary that I closed the interview for that day.

At a succeeding interview I called her mother into consultation. When I would have spoken with the mother privately, the girl at once made vigorous protest, so I said it would be perfectly all right for us to talk matters over together. I then told the mother that perhaps she could help us by shedding some light upon the causes of her daughter's seizures, by telling us what she thought led up to these frequent attacks. The mother turned to her daughter with the remark, "Well, I should think you could have told her that. It's always about something that I want you to do." This and further remarks helped to corroborate my findings concerning the cause of the girl's repressions. I at once went to work upon this serious psychosis which had formed



because of her rebellion against any sort of control or direction. During the course of only a dozen interviews, extending over four weeks' time, it was possible to help her so to change her attitude about such matters that the attacks ceased, and over a year later, she came in and reported that she had had no recurrence of the difficulty, but was well and happy and getting on successfully at home and in school. She looked very well indeed, and showed none of the former opinionated, critical, irritable and uncontrolled manner of speech and action.

The work which I was able to do for her in the few interviews was concerned with helping her to understand why her parents and teachers had insisted, both at other times, and particularly in the incident that has been described, upon her doing things that she did not always choose to do herself. She also had to be brought to an understanding of what it was in herself that made her so rebellious against direction and control, or having any sort of program arranged for her by others. When she was enabled to take a different viewpoint, a viewpoint dictated not by her feelings of resentment and repression, but by the facts in the case, she was able also to take a different attitude toward herself and toward her parents, so that she no longer had roused within her the terrible conflict and rebellion when there were things asked of her by others, or required of her by reason of the circumstances of her life, which she would not have wished to do. She became, thus, able to make her adjustments at these points without emotional repression.

This case in some respects makes an interesting contrast with the first case discussed, while in others it very closely parallels the first. There is great rebellion in each case against any sort of control or direction. The first was restrained by rebuke from doing what she wanted to do, and in her hurt and rebellion, she withdrew within herself and ceased from all normal expression of her own wishes. The second was urged to do what she did not choose to do, and she struck back with all her force, exploding on every possible occasion. In each case repression is the primary cause of the attacks, but aside from the epileptic symptoms, the way in which the repressions manifested themselves, is entirely opposite in the two cases. Fear of oncoming attacks and of what this sort of thing would mean to future happiness and success was present in each case, but in this one this fear led to further repressions further curbing of all expression of desire, complaint, or objection, while in the other it led to reckless extravagance in speech and

conduct and a show of irritability that was excessive. In the first case, the young woman has no memory of the incident that culminated in her sudden withdrawal from outward expression, so deep was the hurt of the rebuke. In the second case there is detailed memory of the incident, but a desperate desire and effort to forget it and all that was connected with it. So strong was this desire that she claimed to have no memory, to beforgetting everything, which, as I have shown above, was not in accord with the facts. She was honestly surprised at finding that she had as good a memory as the average, so fierce had been her eagerness to forget this serious and painful occurrence and to forget all about her home and the strife that was constantly present there between herself and her people. Both these girls were under strong emotional pressure, were filled with great emotional conflict, but the one kept it hidden, while the other exploded on every possible occasion. Each began to improve at once as soon as she was relieved of the fear and apprehension of the attacks and began to understand the causes of the spasms and to entertain hope that she could get in control and be rid of her trouble. With each there had to be the discharge of the emotional burden of the complexes that had been formed. This discharge did not come about through the mere verbal recital of their difficulties. Neither was the emotional repression and conflict removed by giving vent to the feelings involved in the repressed and rebellious condition. The emotional conflict ceased, or the discharge took place, in proportion as the students were able to accept and follow a new program of thought and action in making their adjustments. This new program became possible for them in proportion as they came to understand the causes at work within them that produced their conflicts and hence their symptoms and mal-adjustments, and also as they came to understand the causes at work in those with whom they were associated and in whose presence, or in reaction to whom, these conflicts were aroused.

This understanding brought great relief at once and paved the way for an entirely different attitude both toward themselves and toward those against whom they felt so much rebellion, both in memory and in daily intercourse. As the girl in the second case, for example, came to understand without resistance why her parents were so eager to have her take part in the program, why they urged her, both as a young child and now, to do things which she might not choose to do, and why she reacted as she did, she underwent a change of attitude in regard to these matters, and

soon the memories of the unhappy incidents and the recurrence of similar circumstances in her daily life ceased to arouse her resentment and rebellion. She was able to acquiesce in their wishes when it seemed wise and just to do so, without being in a temper about it, or to excuse herself from conforming to their wishes when this seemed to be the just and sensible thing to do, without being torn with conflict and repression. She had, with the knowledge of herself and of them, come to change her attitude.

This production of an *understanding* of the situation is the fundamental part of the work of re-education, and is possible only in so far as the student is willing and able to learn and to understand. This involves, of course, the removal of such inhibitory ideas and attitudes as keep the individual in a state of resistance against facing the facts, or against a frank and fair consideration of the facts. It is of course not possible, nor essential, for the students to gain a complete understanding of all the elements involved in the causes of conduct in themselves and in others, but enough must be obtained to help them to take a different attitude, and to be willing to follow a different program of thought, feeling, and action.

*Case 3.* This student, whom we shall call Mrs. Z., is a woman in the middle fifties. Her family induced her to take up psychological work because she was suffering from loss of memory. This amnesic condition had come on gradually, being first noticed as "absent-mindedness" about household and family affairs. The "absent-mindedness" had grown gradually worse until it included everything that went on about her, everything that was said or done, whether by herself or others, with the exception that in all matters relating to the financial affairs of the family, proposed expenditures and the like, she had no memory difficulties. And, moreover, in spite of lack of dependability in other directions, hers was still, as was always the case before her trouble came upon her, the deciding voice in such matters. In following the outline of the case it is essential to keep this point in mind, for it will appear that her amnesia grew out of emotional repression and conflict about matters in which she was receiving no adequate satisfaction in her emotional life, and with regard to which she was hence driven in upon herself. In the matter of handling the family expenditures, she had always been able to maintain her place and position, and it was at this point only that her conscious life retained some satisfying contact with the objective



world, and hence it was that here she had not yet begun to suffer from loss of memory. In regard to all other matters she was growing more and more irresponsible so that she was rendered unable even to do her work as housekeeper satisfactorily. In the matter of cooking, for example, though in former times a most excellent cook, she had come to the point where she could not remember what ingredients to use in preparing the simplest dishes, nor could she remember sufficiently well to be able to follow directions given, nor once having put things together, was she able to recall what she had just put into the mixture. As fast as she was told anything she forgot it, not even remembering that she had been spoken to. She had lost all interest in her housework and in her social activities, caring little about seeing or knowing any one, or about keeping up her old friendships. She was very sensitive about her infirmity, and had come to hold herself in great distrust. In the work of re-education, this loss of confidence in herself, this fear lest she show herself unable to do things in which she had formerly been so efficient, was one of the main difficulties to be overcome. After the emotional tensions that were the fundamental cause of her amnesia had been discharged, it was only by the most careful work that she was induced, step by step, to take up activities where she would have to trust to her memory. Her deep gratitude and delight, upon finding that her memory did not fail her at these times, as she falteringly and timidly took up from day to day some simple little responsibilities, were deeply touching.

As has been noted, the one interest which she still retained when work was begun with her was in the financial affairs of the family. The family consisted of husband and grown daughters. Unfortunately, the daughters thought that by making light of her they could induce her to give better heed to what was going on about her. At times they would even reproach their mother for what seemed to them unwarranted heedlessness, for it was unreasonable to them that the mother could remember so well when it came to money matters, but should be so thoroughly and childishly unreliable in regard to everything else. This attitude of chiding and contemptuous reproach so filled the mother with shame and condemnation before her friends and her family that she withdrew all the more rapidly and completely from her former activities, becoming daily more listless and inattentive to her surroundings, with the one exception noted.

While her general health seemed fair, she showed at times

evidence of great weariness and exhaustion. Her face had a grayish cast and was full of deep lines, and she appeared much older than her years would warrant. Her eyes were sunken, with no light of interest flickering in them. In the first interviews she was exceedingly diffident, and embarrassed. She sat with her hand over her face, as though to hide herself from observation, when making response to questions.

The following outline of the materials brought out in the analysis will serve to disclose the main sources of the emotional repressions and conflicts that were at the root of her trouble. It is not to be supposed that this material was brought out in just the order given here. In studying the woman's reactions both to her memory material and to the various details of her daily life, the back-lying causes that motivated the unconscious emotional attitudes were gradually discovered and brought into consciousness. We cannot here go into the numerous details of the analysis and the many steps by which, from interview to interview, her mind was brought through re-education to its normal functioning. We must rather seek a perspective of the whole, that the general principles and mode of procedure involved may become clear.

The salient facts are as follows: Her own mother had been the real head of the family, as the father was lacking in executive ability. Between this capable mother and the sensitive, fine-spirited daughter there was formed a very close bond of love and sympathy from the girl's earliest childhood, each finding great satisfaction in the other. When not yet twenty years of age, the girl married. The young husband was not of the same finely wrought, sensitive material as was the wife, and could neither appreciate the wealth of love that she gave, nor give her adequate and satisfying expression of affection in return, so that her emotional life did not find in her married bonds the response that it craved. From the very first the young wife found it necessary to exercise supervision of financial affairs of the family. She became in fact, the executive head of the family in much the same way as her mother had been, being always deferred to in this respect by both husband and children. It was due to Mrs. Z's competent management and sound judgment that they were enabled not only to make both ends meet, but, with the passing years, to acquire, from very small beginnings, a very considerable property. This recognition and place which she won for herself through the supervision of their finances, played an important part in giving the woman some anchorage for herself, and the results shed an

illuminating light upon the principles involved in the pathological symptoms which she developed; for the fact that in regard to those things from which she gained some recognition, she suffered no amnesia, nor loss of interest, while losing so profoundly in other directions from which she was getting little or no return, furnished additional evidence of the underlying nature of the causes of her malady.

While the husband showed her consideration, not only in this regard but in many others, he was nevertheless afflicted with so violent and uncontrollable a temper that he would burst out into a tempest of anger over some trifle that had gone wrong and would abuse her with harsh words. These angry fits, with their accompanying abuse, hurt the sensitive girl cruelly, but because she feared that he might do much worse things, she never dared to reproach him, never allowed him to know how much she was hurt nor how she longed to have him ask her forgiveness for his outbursts and admit his gross injustice and cruelty to her. Being a woman of great pride, with ambition to make her marriage a success, she never revealed to any one, not even to her mother, this source of great disappointment and fear. So greatly did she dread his outbursts, and so much shame did they cause her, that, as she expressed it, she lived for years "sitting on the lid," doing her utmost, so far as she was able to understand him to prevent the outbursts, and filled with constant disappointment over the failure of her married life to approach what she considered the normal ideal. She still kept up correspondence with her mother, and in this relationship was receiving much satisfaction in her craving for tender affection.

After his unseemly outbursts of temper, the husband, while offering no apology nor showing evident remorse, would nevertheless always want to do something to help her about the house, going out of his way to perform some little act of helpfulness. This was of course, his awkward and insufficient way of trying to show his regret and of endeavoring to atone for the wrong he had done to her and to himself. But she was unable to accept these inadequate attempts at reparation for his misdemeanor, though they were the best that his nature could do in the way of apology.

In time a daughter was born, and on this child the mother lavished her affection during its infancy. But at an early age, the daughter, through the accident of circumstances so common with children, formed a habit that she instinctively felt she must conceal from her mother, and there began, because of this secre-



tiveness, a rapid estrangement of the daughter's affections and confidence. Here again the mother began to lose the return for affection that she was giving. A second daughter was born, and there grew up between this child and the mother the same sort of bond of mutual affection as the one that had formerly existed between Mrs. Z. and her own mother. In this child the love-life of the mother seemed to find more adequate return. But when a third child, also a daughter, was less than two years old, the second child, then at the age of seven, was taken ill with a slow paralysis. Such was the painful nature of the malady as to necessitate the constant personal attendance of the mother, who stayed with the child day and night, week after week, chafing her limbs and diverting her mind, never caring whether she herself had rest and sleep or not. So great was the love that she bore the child, and so adequate and nourishing were the affection that she received in return and the satisfaction that she took in the sacrificial service, that she went through nearly a year of this exhausting toil cheerfully, with no physical breakdown. We have here a clear example of the added strength for exacting and exhausting tasks, otherwise impossible of accomplishment, given by reason of the nourishment afforded by the satisfaction of the emotions. Where the individual focuses all his affection upon one thing only and seeks and receives his satisfaction from this source alone, we must recognize the presence of an abnormal condition in the emotional life. It is a foregone conclusion that repression, inhibition, and starvation of so strong an emotional life as that of this woman centered as it was upon practically a single interest, is likely to result in pathological conditions.

After a year's illness the child died. The mother's sorrow over this loss was poignant. She could talk and think of nothing but her irreparable loss. For a time after the child's death she mourned openly and deeply, but as time went on, she decided that the brave and Christian thing to do was to cease her grieving and so she set about trying to forget the pain and become reconciled. She became able to go about her work without tears, and without speaking of her loss to others. In the course of intervening years she believed that she had become completely reconciled and that she had quite ceased to remember her loss with pain. As a matter of fact she had actually succeeded in putting it well out of her conscious life, but nothing had taken its place in the conscious life to give satisfaction to the emotional crav-

ings that had found outlet and satisfaction in the child while living, and that later had for some time fed upon memories.

As time went on, the youngest daughter, following the example of the eldest girl, also took to cavilling, and assumed a reproachful and unloving attitude toward the mother, and thus the latter was robbed of another channel through which her emotional life might find some expression and satisfaction. Unconsciously she withdrew further and further within herself. As related above, absence of mind and finally serious amnesia set in, accompanied by an agonizing feeling of shame and condemnation in the presence of her family except in relation to the one thing in which she had always been respected and in which she had always held her place, namely, the financial affairs of the household.

The theory upon which the analysis and re-education are carried on is that the cause of such conditions as were found here is to be discovered in the emotional life. The channels through which her emotional life had sought outlet and return had failed her in that her husband and her living children gave her little satisfaction. Further, the one child upon which her love-life had been so richly fed had been taken from her, and she had refused to allow herself longer to get any satisfaction in turning to any conscious memory of it. The analysis showed, however, that instead of making a complete emotional adjustment at this point by the means she used, she had merely thrust the emotional value which the memories of this child held for her, below the level or outside the bounds of her personal consciousness; for when these memories were brought to the surface there was abundant evidence that they still held all their old feeling-values for her, in spite of her earlier protestations that she almost never thought about the child any more, as it had died so many years before, and that she had ceased long since to feel its loss. The evidence showed that she had turned inward to a life of unconscious phantasy to feed upon the memories of her child in which she found satisfaction, and away from the living members of the family from whom she was not receiving similar return. She did not remember what went on about her because she was simply not giving it her dynamic, vital attention. Attention is essential to memory. We do not normally pay vital or effective attention to that from which we do not get some satisfaction, direct or indirect, and the things to which we do not pay attention, have little memory value for us. This woman's amnesia grew out of lack of attention to and interest in outward objective activities

because they held nothing adequate for her life to feed upon. For some time after the child's death she gave full conscious attention to the only source from which her nature drew adequate satisfaction, namely, the memories of her child. Then, being deeply religious, under the stress of the conviction that it was a real "sin" to grieve so constantly over one whom "God had freed from a life of suffering and had taken to live in bliss with Him", she refused herself any further conscious satisfaction from this source. But in so doing, no outlet to her emotional life was put in its place. Had she been able to turn herself to her family, or her social circle, and there find a satisfying return, the adjustment would have been possible; the sublimation of her emotional life from the memories of her child to other interests could have taken place. When this emotional adjustment, or sublimation, fails to take place, a condition of tension, repression, and dissatisfaction is set up that very often leads to pathological conditions either in the functioning of the body or of the mind. In this case, there began a steadily increasing dissociation in which the woman withdrew her attention from the life about her and unconsciously gave her mind to the repressed memories. By dealing from interview to interview with the details of these repressed memories with their emotional values, the woman came to be clearly conscious that her mind had thus been living within itself, that she had been turning her attention inward as in a dim dream, living in phantasies upon the satisfactions brought her by this subconscious brooding. This stream of mental life had been going on its way co-existing with the parallel, but much less rich, stream of the consciousness that she had of her daily objective life. As she came to recall it, as one might an almost forgotten dream, she was able to see that it had been going on as the constant and satisfying accompaniment of the superficial life that constituted what we are wont to call the personal consciousness, and that to the experiences composing the personal consciousness she had been giving no interested heed. Her attention was here, her life was here, since here her emotional nature was receiving its chief satisfaction.

The correction of the amnesia and dissociation was brought about through resolving the emotional tensions as they were discovered, and furnishing satisfying channels of outlet and return for the emotional life. This was accomplished primarily through the process of re-education, by dealing with the ideas and attitudes which the analysis showed to have bearing upon the wo-



man's malady. This re-education, by which she was enabled gradually to change her thought life and to adopt new programs of reaction to her daily affairs, covered months of the most patient and careful work. Too much emphasis cannot be laid upon the fact that success in psychological analysis and re-education demands the most sincere, intelligent, and sympathetic understanding of human nature; otherwise the mind that has been driven in upon itself reacts to any attempt to deal with it in exactly the same fashion as it reacts to any other situation arising in the daily problems of adjustment, namely, by withdrawal, by defense, by further secretiveness. The establishment in the mind of the student of the attitude of genuine confidence in his analyst is absolutely essential if the conscious and unconscious life is to come forth from its hiding, as it were, and offer itself, at first timidly, for examination. This confidence grows and becomes strong enough to make it possible for the student to face with his analyst the inmost recesses of his mental life, to deal consciously and fearlessly with the painful or sensitive memories, only as the analyst, by answering to the needs of the student mind proves to be worthy of his confidence. For a complex to be discharged, it is not sufficient that it be uncovered and all its elements revealed to the consciousness of the student. Discharge of a complex requires that every element that goes to make it up, and all the causes that were at work to produce and to continue it, shall be met at once upon their appearance with intelligent understanding by the analyst. It is not enough to listen with sympathetic ear. To meet the student mind with intelligent understanding as it unfolds itself, requires such understanding both of the causes of the complex and of the specific nature of that student that every element of the complex can be met by the analyst with a constructive program of thought and action. This program must be one that the student is able and willing to accept, and that will enable him to understand the causes of his difficulties more clearly and to meet them. The complex is discharged only to the extent that the student is able and willing to accept and follow the program, for only in the acceptance of, and by action in accordance with, the new program come those changes of mind that both relieve the complex of its burden of emotional pressure and tension, and at the same time enable the student to make his adjustments in thought, feeling, and action in such a way that the emotional tensions and repressions are not renewed. Thus the time that it takes actually

and completely to discharge a complex is determined by the willingness and the ability of the student to accept and put into action the new program. The discharge begins, and great relief often comes at once, with the first understanding that the student gets of himself, and with the first steps that he takes toward accepting the new program. But the discharge is not completed, nor is the psychosis dissolved, until the student has built up a new mind for himself at that point through the intelligent acceptance and sincere and diligent practice of the new program. The process is a genuinely educational process, for the student *learns* to think and to feel differently, and oftentimes this involves very radical and far-reaching changes. If no program is furnished to meet the student's needs, or if one is furnished that he is unable or unwilling to accept and follow, even though some relief may momentarily be experienced from uncovering the complex, and though he may have received some light upon the causes of his difficulties, the student does not change his modes of thought and feeling, but goes back and lives, as it were, with his complex. His mind centers there, for there is where he finds the only satisfaction that he knows.

With the first insight into the real causes of her difficulties, together with the relief that came from a beginning made in changing her attitudes of mind, Mrs. Z.'s amnesia began to disappear. It continued to improve, as step by step, each detail of the mass of repressions and tensions was brought to light and she was taught how to deal with it. Each step gave her added strength and confidence, so that she more and more allowed that which had been kept hidden to come into the light of clear understanding in her personal consciousness. As she followed her program from day to day, she learned how to meet without fear and tension the various situations that had formerly filled her with fear and driven her in upon herself. She learned how to come forth, as it were, from herself, as the inhibitions were removed, and to find a renewed and satisfying interest in her family and community life. As an aid to this, the daughters were interviewed and made acquainted with their contributions to their mother's malady and they were thus brought to change their attitude toward her. They ceased their foolish chiding and ridicule, and began because of their new understanding, to take her into their confidence and show her the tender affection and consideration that were her due. Her husband also was persuaded to have some analytical work done with him, and as a result of his better under-

standing both of himself and of the causes of his wife's difficulties, he too was able to make some very decided and helpful changes in his attitude toward his wife. Thus a new atmosphere was created in the home, so that the woman found it easier to make her adjustments. She found herself with such response from without that she was able to turn there instead of being thrust in upon herself as before. By degrees, almost as a child learning to walk, she changed her reactions and learned how to meet whatever came up in her family life with an understanding that avoided generating repressions and frictions within herself.

In brief, great repression and conflict, combined with the cutting off of outward channels of emotional expression and satisfaction, were the primary causes of this woman's amnesic condition. Removal of the repressions, stoppage of the conflicts, with positive provision for satisfying outlet and return for her emotional life through the most sympathetic and painstaking re-education, entirely removed the amnesia. The shrinking and diffident manner has entirely disappeared, she is in most excellent health, and has taken her place capably again in her family and community life.



## REVIEWS

PROBLEMS OF MYSTICISM AND ITS SYMBOLISM. By Dr. Herbert Silberer of Vienna. Translated by Smith Ely Jelliffe, M. D., Ph. D. New York: Moffat, Yard & Company, 1917. Pp. 451. \$3.00 net.

In his brief "Translator's Preface" Jelliffe tells us that mysticism is one of the products of the sublimation tendency which "represents the spiritual striving of mankind towards the perfecting of a relation with the world of reality—the environment—which shall mean human happiness in its truest sense." He would regard this work by Silberer as a contribution to what may be called the science of paleo-psychology "in that it shows the essential relationships of what is found in the unconscious of present day mankind to many forms of thinking of the middle ages."

I may say here that although in fundamental traits man is no different today than he was many years ago, still, as I understand Jelliffe, and Jung, and even Stanley Hall, the contention that the conscious thought of human beings of earlier times still exists in the unconscious of the man of today, means nothing less than the hereditary transmission, by the germ plasm, and into the so-called unconscious, of not only symbols but even actual individual thoughts or ideas of a definitely acquired nature. The burden of the proof of such a possibility rests with those who make this claim. And up to date, there is no substantial evidence, so far as I am aware, in its favor. In fact, one can prove, by analytical and critical thinking and sifting of the evidence, that this cannot be true. In fact, some have already proven this to their and others' complete satisfaction.

In part I of the book proper Silberer gives in full a parable which he found in an old book dealing with the hermetic art. The original principles of the so-called hermetic art, sometimes also called alchemy and the royal art, "is related to several 'secret' sciences and organizations: magic, kabbala, rosicrucianism, etc." The latter will therefore come in for discussion, the author concludes.

Silberer regards the parable as a dream or fairy tale, which he proceeds to analyze psychoanalytically, a short exposition of psychoanalysis as a method of dream and myth interpretation of necessity preceding the analytic discussion of the parable.

Part II is called the analytic art of the work. His psychoanalytic interpretation of the parable leads him to conclude: "the wanderer in

his phantasy removes and improves the father, wins the mother, procreates himself with her, enjoys her love even in the womb and satisfies besides his infantile curiosity while observing (the) procreative process from the outside. He becomes King and attains power and magnificence, even superhuman abilities." The psychoanalyst might agree with this interpretation. The disbeliever would be unable to follow the author in his analysis and conclusions and agree to its truth, except as to the last sentence quoted.

He then analyzes alchemy, the hermetic art, rosicrucianism and freemasonry, especially as regards the philosophy with which they are interwoven, and the hidden driving forces of which these are symbolic expressions.

He finds that there are three possible interpretations: the psychoanalytic, the chemical (scientific), and the anagogic.

This leads him to the third or synthetic part. After a lengthy exposition of the psychoanalytic principles of introversion and regeneration, Silberer takes up in a chapter entitled "The Goal of the Work," the fundamental meaning or object of mysticism. He speaks of "union with God," which he prefers to interpret as self-annihilation rather than to give a sexual interpretation or setting. He also declares: "The attainment of an inner harmony, of a serene peace, is what, as it seems to me, is most clearly brought out as the characteristic of the final unification—not merely by the Hindus or Neoplatonists, but also by the Christian mystics and by the alchemists." This paradisiacal state, with its "recovery of the harmonious state of the soul," demands absolute freedom from conflicts.

The truly "royal art," as elaborated by Silberer in his final chapter on "The Royal Art," which at first had to do merely with gold making and magic, is indeed the perfection of mankind, the freeing of the will, the turning of the dependent into independent, the slave into a master, the attainment of omniscience, omnipotence. To attain this requires work.

If I understand Silberer aright, he means to say that mystics seek inner harmony, perfection, omniscience, omnipotence and wish fulfillment through union with God, which union one may interpret sexually or as self-annihilation, the author inclining to the latter interpretation.

Some notes and a bibliography are appended.

There is lacking in this book a directness of expression, by virtue of which one can quickly grasp the meaning of the author. There is a vagueness and ambiguity, and a circuitous method of presenting that which the author wishes to say.

Truth is interwoven with fiction. There is much to praise and much to criticize.

The average reader will find it difficult to know just what the author's final conclusions are. One is apt to become confused here and there. There is not given to us a real, compact summing up of the views of the author. A few conclusions here, a few there, and a round-about method of discussion do not lead to directness, simplicity and clarity of thinking and expression.

In the chapter on "The Goal of the Work" the author most nearly approaches the crux of the problem. But he gets hold of it only to let go again.

Silberer has not satisfactorily solved the problem of mysticism. He has given some valuable hints. He has added much error and confusion.

The translation by Jelliffe is satisfying and all that it should be.

MEYER SOLCMON.



## NOTES

**PSYCHIATRIC SOCIAL WORK AT SMITH COLLEGE.** This is a notice designed to call the attention of neurologists and psychiatrists to the school for psychiatric social work which is being conducted at Smith College. The first session was held last year and was eminently successful, both in point of the training given to the young women who took the course and in the positions they were able to fill upon graduation.

The course this year, which is somewhat longer than it was last year, embraces first, four months of theoretical work, given in two summers, mainly in the form of lectures given by the sociological and psychological staffs of Smith College, and lectures on psychiatry and neurology given by leading physicians actively engaged in this specialty, and second, nine months of practical case work given in leading institutions in Boston, New York, Philadelphia and Baltimore. The Advisory Committee is headed by Dr. E. E. Southard and comprises Dr. L. Pierce Clark, Dr. Walter E. Fernald, Dr. John A. Houston, President William A. Nielson, Smith College, and Dr. William L. Russell.

This course is essentially based on the belief that psychiatry needs a specially trained social worker, both for diagnosis and treatment. To the young women who enter the work it offers a useful career which is gaining yearly in dignity and remuneration. To the institutions and physicians dealing with psychiatric cases it offers trained workers well grounded in social work and having enough psychiatric insight to enable them to understand the problems which they are to aid the institutions and physicians to solve. This dual service the school carried out in an able manner at its very first attempt, and there is not the slightest reason to doubt that it will accomplish its purpose even more successfully this year and throughout its future career.

ABRAHAM MYERSON, M. D.







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